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any from the Author

A

BOTANICAL ARRANGEMENT

OF

BRITISH PLANTS;

INCLUDING

THE USES OF EACH SPECIES,

IN

MEDICINE, DIET, RURAL ECONOMY, AND THE ARTS.

WITH AN EASY

Introduction to the Study of Botany, &c. &c.

ILLUSTRATED BY COPPER PLATES.

THE SECOND EDITION.

By WILLIAM WITHERING, M.D.F.R.S.

INCLUDING

A NEW SET OF REFERENCES TO FIGURES,

PARTLY BY THE AUTHOR,

AND PARTLY BY JONATHAN STOKES, M.D.

V O L. III.

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A

BOTANICAL ARRANGEMENT
O F
BRITISH PLANTS, &c.

VOL. III. PART I.

By WILLIAM WITHERING, M.D.F.R.S.

CONTAINING,

- I. An Easy Introduction to the Study of Botany.
- II. Directions for drying and preserving Specimens of Plants.
- III. Dictionary of English Botanical Terms.
- IV. Latin Terms of LINNÆUS, accented and explained.
- V. Explanation of the Plates.
- VI. An Index to the Two First Volumes; &c.

N. B. *The purchaser is desired not to bind this, but to wait for the second part, which will compleat the work, and which will be published as soon as it can be got ready.—A full Title-page to the third volume will be given at the same time.*

PRICE THREE SHILLINGS AND SIXPENCE SEWED.



A N
E A S Y
I N T R O D U C T I O N
T O

The S T U D Y of
B O T A N Y.

TAKING it for granted, that the Botanical Student will be at no loss to distinguish a Vegetable, at first sight, from an Animal, or a Fossil, and that all Vegetables are capable of producing Flowers and Fruit,* we shall immediately enter upon a description of the parts composing a Flower; for as the Linnæan System of Botany is chiefly founded upon the *number, shape, and situation* of these parts, an accurate knowledge and discrimination of them is necessary to the understanding the Elements of the Science.

* By *Fruit* is here meant *perfect Seeds*; whether accompanied or not, by an eatable part.

A FLOWER consists of the	{	EMPALEMENT, (or <i>Calyx</i> .)
		BLOSSOM, (or <i>Corolla</i> .)
		CHIVES, (or <i>Stamina</i> .)
		POINTALS, (or <i>Pistilla</i> .)
		SEED-VESSEL, (or <i>Pericarpium</i> .)
		SEEDS, (or <i>Semina</i> .)

To these may be added, the HONEY-CUP, (or *Nectarium*;) and the RECEPTACLE, or *Receptaculum*.

Some Flowers possess all these different parts, whilst others are deficient in some of them; but either CHIVES or POINTALS, or both, are to be found in every flower.

The EMPALEMENT is formed of one, or more, green or yellowish green leaves, placed at a small distance from, or close to, the blossom.

The different kinds of Empalement are (1) a CUP, or *Perianthium*; (2) a FENCE, or *Involucrum*; (3) a CATKIN, or *Amentum*; (4) a SHEATH, or *Spatha*; (5) a HUSK, or *Gluma*; (6) a VEIL, or *Calyptra*; (7) a RUFFLE, or *Volva*; but the most common is the CUP. For an explanation of these see the Dictionary of Terms; or look at a Rose, and the green covering that incloses and supports the blossom, is called the CUP. Pl. 3. fig. 1. (*a. a. a. a. a.*) The Cup of a Polyanthus is represented in pl. 3. fig. 10.

Linnæus says the Empalement is formed by the outer bark of the plant.

The

The BLOSSOM is that beautifully coloured part of a flower, which attracts the attention of every body. If it be in one piece, as in the *Polyanthus*, or *Auricula*, it is said to be a blossom of *one Petal*; but, if it be composed of several parts, it is accordingly said to be a blossom of *one, two, three, &c.* or many parts or *Petals*. Thus the Blossom of the *Tulip* is formed of *six Petals*; and the *Garden Roses* bear Blossoms composed of *many Petals*. The Blossom is supposed to be an expansion of the inner bark of the plant.

The CHIVES are slender thread-like substances, generally placed within the Blossom, and surrounding the Pointals. A Chive is composed of *two parts*, the *Thread* and the *Tip*, but the *Tip* is the essential part. Chives are formed of the woody substance of the plant.

The POINTALS are to be found in the centre of the flower: they are composed of *three parts*, the *Seed-bud*, the *Shaft*, and the *Summit*; but the *Shaft* is often wanting. Some flowers have only one Pointal; others have two, three, four, &c. and some have more than can be easily counted. Linnæus says the Pointals are formed of the Pith of the Plant.

The SEED-VESSEL. In the newly-opened flower, this part was called the *Seed bud*; but when it enlarges and approaches to maturity, it is called the *Seed-vessel*. Some flowers have no seed-vessels: in which case, the Empalement generally incloses and retains the Seeds until they ripen.

SEEDS, are sufficiently well known; the substance to which they are fixed within the seed-vessel is called the *Receptacle of the Seeds*.

HONEY-CUPS are those parts of a Flower which are found to contain honey. The tube of the Blossom serves the purpose of a Honey-cup in many Flowers, as in the Honey-suckle: but in other flowers there is a peculiar organization destined to this purpose. See pl. 5. fig. 1, 2, 3, 4.

The RECEPTACLE is that part, to which the above-mentioned parts of a Flower are fixed. Thus, if you take a Flower and pull off the Empalement, the Blossom, the Chives, the Pointals, and the Seeds or Seed-vessels, the remaining part at the top of the Stalk is the Receptacle. In many Flowers the Receptacle is not a very striking part, but in others it is very large and remarkable: thus in the Artichoke, after we have taken away the leaves of the Empalement, the Blossoms, and the bristly substances; the part remaining, and so much esteemed as food, is the Receptacle.

Having thus briefly mentioned the different parts which enter into the composition of Flowers, let us for the sake of illustration examine some well-known instance. Suppose it to be a flower of the CROWN IMPERIAL.

CROWN IMPERIAL.

EMPALEMENT. None.

BLOSSOM. - - Six Petals. (Pl. 3. fig. 2. *a. a. a. a. a. a.*)

CHIVES. - - Six. (Pl. 3. fig. 2. *bc. bc. bc. bc. bc. bc.*)
Threads fix; shaped like an awl.
 (Pl. 3. fig. 2. *b. b. b. b. b. b.*)
Tips oblong; four-cornered. (Pl. 3. fig. 2. *c. c. c. c. c. c.*)

POINTAL. - - Single.

Seed-bud oblong; three-cornered.
 (Pl. 3. fig. 2. *d.*)

Shaft longer than the Chives. (Pl. 3. fig. 2. *e.*)

Summit with three divisions. (Pl. 3. fig. 2. *f.*)

SEED-VESSEL. An oblong capsule, with three cells and three valves. (Pl. 3, fig. 4.) represents the Seed-vessel cut a-cross to shew the three cells in which the Seeds are contained.

SEEDS. - - - Numerous; flat.

By considering this description with some attention, and comparing it with the Flower itself, and likewise with the engraved figures, we shall soon attain a pretty good idea of the different parts of a Flower. If a Crown Imperial is not at hand, a Tulip or a Lily will correspond pretty well with the above description. But if we examine the Crown Imperial we shall find at the base of each Petal, a hole, which is the Honey-cup. In pl. 3. fig. 3. is

I N T R O D U C T I O N.

a representation of one of the Petals separated from the rest, to shew the Honey-cup at (*k*,) and one of the Chives (*h. i.*)

It is natural to ask the uses of these different parts—A full reply to such a question would lead us to a long disquisition, curious in itself, but quite improper in this place. Let it therefore suffice to observe, that the production of perfect Seed is the obvious use of the flower; that for this purpose the Seed-bud, the Summit, and the Tips are all that are essentially necessary; and perhaps the summit might be dispensed with. The fine dust, or meal, (*farina*) that is contained in the Tips, is thrown upon the Summit of the Pointal: This summit is moist, and the moisture acting upon the particles of the dust, occasions them to explode and discharge a very subtile vapour. This vapour passing through the minute tubes of the Pointal, arrives at the Embryo Seeds in the Seed-bud, and fertilizes them. The seeds of many plants have been observed to become, to all appearance, perfect without this communication; but these Seeds are incapable of vegetation. In pl. 3. fig. 5. at *f*. one of the Tips is represented discharging its dust; and at fig. 8. you see a particle of dust greatly magnified and throwing out its vapour. The Empalement and the Petals seem primarily designed as covers, to protect the more essential parts; and perhaps it is not too vain an imagination to believe, that a display of beauty was in some measure the design of the Creator.

Independent however of these uses designed by Nature, the Botanist takes advantage of the different number, figure, size, and situation of these parts, and assumes them as the foundation of a systematic arrangement. He divides all the vegetable productions upon the surface of the globe, into Classes, Orders, Genera, Species and Varieties. The Classes are composed of Orders; the Orders are composed of Genera; the Genera of Species; and the Species of Varieties.

We are accustomed to consider the productions of Nature as forming three distinct parts, called the Animal, the Vegetable, and the Fossil or Mineral KINGDOM.

Therefore taking the matter up in this familiar language, let us endeavour to attain an idea of Classes, Orders, &c. by continuing the allusion. Let us compare

The VEGETABLE KINGDOM to the KINGDOM of ENGLAND;
 --- CLASSES - - - - - to the COUNTIES;
 --- ORDERS - - - - - to the HUNDREDS;
 --- GENERA - - - - - to the PARISHES;
 --- SPECIES - - - - - to the VILLAGES;
 --- VARIETIES - - - - - to the HOUSES.

Some authors have aptly enough compared

A CLASS - - - to an ARMY;
 An ORDER - - to a REGIMENT;
 A GENUS - - to a COMPANY;
 And a SPECIES to a SOLDIER.

But

I N T R O D U C T I O N.

But no comparison can be more in point, than that which considers the vegetables upon the face of the globe, as analagous to the inhabitants ; thus —

VEGETABLES resemble the INHABITANTS in general ;
 CLASSES - - resemble the NATIONS ;
 ORDERS - - resemble the TRIBES ;
 GENERA - - resemble the FAMILIES ;
 SPECIES - - resemble the INDIVIDUALS ;
 And VARIETIES are the same *Individuals* in different circumstances.

All the vegetables in Great-Britain are divisible, according to the System of Linnæus, into twenty-four Classes.

The characters of the CLASSES are taken either from the *number*, the *length*, the *connexion*, or the *situation* of the Chives.

The characters of the ORDERS are most frequently taken from the *number* of the POINTALS ; but sometimes from some other circumstances either of the Chives or Pointals, which will be noticed hereafter.

The characters or marks of the GENERA are taken from some particulars in the flower, before unnoticed ; but generic descriptions are designed to contain an account of *all* the most obvious appearances in the flowers.

The SPECIES are mostly characterized from peculiarities in the STEM or LEAVES; sometimes from parts of the FLOWER; rarely from the ROOTS.

Varieties. Both leaves and flowers are subject to variations; some of them evidently dependant upon soil and situation: but others owing to causes which are hitherto unascertained. Thus the leaves of the *Ranunculus aquatilis*, or Water Crowfoot, growing beneath the surface of the water, are much more divided than those which grow above the surface: so that a person unacquainted with this circumstance, would hardly believe they belong to the same plant. Again; the leaves of the *Polygonum amphibium*, or amphibious Snakeweed, in wet situations, are smooth; but, in dry and warm situations, rough. Some authors therefore have reckoned them as distinct species; but, let them change situations, and the appearances will be changed likewise. But why the leaves of Mint are sometimes curled, those of Holly or Mezereon variegated with white, &c. is a more difficult matter to determine; seeing that slips from these plants, tho' transplanted into different soils, do not lose their peculiarities: but young ones raised from seeds return to their original form. It is evident therefore that these, however different in appearance, are not to be considered as distinct species, but only as varieties.

No variations are more common than those of colour; but desirable as these changes are to the Florist, they have little weight with the Botanist, who

who considers them as variable accidental circumstances, and therefore by no means admissible in the discrimination of species.

Many flowers, under the influence of garden culture, become double ; but double flowers are monsters, and therefore can only rank in a system of Botany, as varieties. When we consider, that every plant is composed of an outer bark, an inner bark, a wood, and a heart or pith ; and that flowers are formed by an expansion of these parts ; when we recollect too that the Chives are formed of the woody substance, and are told, that this woody substance was originally formed by many coats of the inner bark condensed ; we shall not be at a loss to account for the production of double flowers. The woody substance instead of being formed into Chives is expanded into Petals. This seems to be effected by too much succulent nourishment, which prevents the wood being properly consolidated. Hence it is that the flowers with many Chives are more apt to become double, and to a greater degree, than those which have few ; as appears in the Anemone, the Ranunculus, the Poppy and the Rose. Where the Petals are so much multiplied as to exclude all the Chives, the flowers necessarily become barren.

OF C L A S S E S.

By looking over the annexed Table of the Classes, by referring to plate I. and sometimes by having recourse to the plants mentioned as examples, the learner will soon commit the characters of the Classes to memory, so that upon the first sight of a flower, it will be no difficult matter for him to refer it to its proper Class.

OF O R D E R S.

A knowledge of the Orders will very readily be attained, by observing, that

In the 14th Class they depend upon the Seeds having a Seed-vessel or not.

----- 15th upon the shape of the Seed-vessel.

----- 19th upon the structure of the Florets. (*See the introduction to the 19th Class at page 818.*)

----- 20th upon the number of Chives.

----- 21st and 22d upon the number and situation of the Chives, or the union of the Tips.

----- 23d upon the situation of the Chives and Pointals.

----- 24th upon the natural assemblages of plants resembling one another.

And that in all the other Classes, not particularly specified, the Orders depend upon the *Number* of the Pointals only.

OF G E N E R A.

Before we can understand the Characters of a Genus, we must again consider the different parts that enter into the structure of flowers, and learn
how

how these different parts may be modified. As for instance,

The
EMPALEMENT
may be either
a

CUP, (*Perianthium*) fixed near to the flower; as in the Rose, the Cowslip, or the Foxglove.

FENCE, (*Involucrum*) remote from the flower; generally belonging to the Rundle-bearing, or Umbelliferous plants; as Hemlock, or Carrot. When it furrounds the base of the rundle it is called the *general* fence, (*Involucrum*;) but, when it furrounds the base of a rundlet, or little rundle, it is called the *partial* fence, (*Involucellum*.) *

CATKIN, (*Amentum*) as in Willow, or Hasel.

SHEATH, (*Spatha*) as in Snowdrop, or Daffodil.

HUSK, (*Gluma*) as in Wheat, Oats, or other different kinds of Grasses.

VEIL, (*Calyptra*) covering the fructification of some of the Mosses, and resembling an extinguisher.

RUFFLE, (*Volva*) furrounding the Stems of many of the Fungusses.

For a further explanation of these terms, and for references to the plates, examine the Dictionary of Botanical Terms.

The
BLOSSOM } Of ONE PETAL, as the Foxglove or Primrose.
 } Of MANY PETALS, as the Rose or Anemone.
may be } But in many flowers the Petals are alto-
either } gether wanting.

For

For a more full explanation of the modifications of Petals and Blossoms see the Dictionary, and likewise plate 4.

The CHIVES and POINTALS have been sufficiently explained before.

- | | | |
|-----------------------------------|---|---|
| A
SEED-VESSEL
may be either | { | a CAPSULE, (<i>Capfula</i>) membranaceous, opening variously; as in Poppy, Convolvulus, Pimpernel. |
| | | a POD, (<i>Siliqua</i>) membranaceous, of 2 valves, the Seeds fixed to each seam; as in Wall-flower, and Honesty. |
| | | a SHELL, (<i>Legumen</i>) membranaceous, of 2 valves, the Seeds fixed to one seam only; as in Pea, and Broom. |
| | | a BAG, (<i>Folliculus</i>) membranaceous, distended, of 1 valve, opening at one side, not embracing the Seed; as in Periwinkle. |
| | | a BERRY, (<i>Bacca</i>) pulpy; the Seeds separate; as in Gooseberry, or Elder. |
| | | PULPY, (<i>Drupa</i>) inclosing a hard nut; as the Cherry, or the Peach. |
| | | FLESHY, (<i>Pomum</i>) covering a capsule containing the seed; as in the Pear, or Apple. |
| | | a CONE, (<i>Strobilus</i>) tiled; as in Fir, or Pine. |

These terms will be found more fully explained in the Dictionary, and illustrated in plate 5.

A R E C E P -

A RECEPTACLE (*Receptaculum*) is either peculiar to one flower, as in the Rose, Lily, and Polyanthus; or common to many flowers, as in Dandelion, Hawkweed, and Artichoke. (*See the Dictionary.*)

FLOWERS may be collected into a	{	SPIKE, (<i>Spica.</i>)
		PANICLE, (<i>Panicula.</i>)
		BROAD-TOPPED SPIKE, (<i>Fastigiati.</i>)
		BUNCH, (<i>Racemus.</i>)
		RUNDLE, (<i>Umbella.</i>)
		TUFT, (<i>Cyma.</i>)
		WHORL, (<i>Verticillus.</i>)
		CATKIN, (<i>Amentum.</i>)

Each of these terms may be found in the Dictionary, where they are explained by familiar examples, and references to the plates.

For a proper understanding of COMPOUND Flowers the reader is likewise referred to the Dictionary, and to the explanation of the 4th plate.

The reader having now, it is supposed, attained tolerably precise ideas of the constitution of Classes and Orders, and likewise of the parts upon which the Generic Characters are founded; we shall select a few instances of well known plants, and, after investigating them systematically, we shall hardly be at a loss to investigate others which we do not know.

RULES for INVESTIGATION.

First. When a plant offers itself to our inspection, the first thing to be determined is the Class to which it belongs. This is to be done by examining the Chives, and referring to the Table of the CLASSES opposite to page xv. Having fixed upon the Class which we believe to be right, let us turn to the Introduction to that Class, and if this gives us no reason to alter our opinion, we are pretty certain of being so far right. It is best not to trust to the examination of one flower only; for we shall sometimes find the number of Chives to be different, in different flowers upon the same plant. In that case the classic character must be taken from the *terminating* flower.

Second. We must next look how many ORDERS the Class consists of; and after observing the circumstances by which the Orders are determined, we must compare these with the Plant before us. If the Order we refer it to has any subdivisions, we shall soon perceive under which of the subdivisions we must expect to find the Genus.

Third. After comparing the Flowers with the Characters of different GENERA, contained in the Order, or in the particular subdivision of the Order, we shall soon perceive with which of them it best corresponds; and looking forward to the description of that Genus, if the description agrees pretty exactly with our specimen, we conclude that we are now certain of the Genus. Doubtful matters will
some-

sometimes arise; but these are for the most part made clear by observations subjoined to the generic descriptions; and still more so, by duly considering the *ESSENTIAL CHARACTER* placed at the end of the generic description.

Fourth. If none of the Generic Characters at the beginning of the Class agree with the Flower; we must then look at the end of the Order, or subdivision of the Order, and see what plants are there noticed in a smaller print, and with this mark † prefixed to them. If we have not found the plant before, some one of these must be it; therefore looking for these in the index, and comparing the generic descriptions with the specimen in hand, we shall not only discover the Genus, but likewise the circumstance which occasioned our perplexity.

Fifth. Having now determined the Genus, you will observe that when the *SPECIES* under that Genus are numerous, they are subdivided. Consider then which of these subdivisions it agrees with; and having determined that, compare it with the several *SPECIFIC* characters. Your plant will probably agree with some one of these.

If you still are in doubt, guided by the references to figures which follow the Specific Character, turn to such figures as you possess; and, to make the point still more certain, compare your plant with the descriptions which follow the references to figures; for these will remove many an existing doubt, and obviate many a possible mistake.

If the plant in question be any remarkable *Variety*, you will probably find it introduced after the additional descriptions mentioned above.

Sixth. Make it an invariable rule, not to pass over a single term, the precise meaning of which you do not thoroughly understand, without consulting the Dictionary. By this means you will very soon be able to do without consulting it at all.

Seventh. When you gather plants for examination collect a considerable number of the Flowers, and, if possible, some just opening, others fully expanded, and others with the Seed-vessels almost ripe; take care also to gather at least one Specimen of the plant as perfect and as entire as possible.

It was thought necessary to give a variety of examples for investigation. 1. Because only some of them are to be found at any one season. 2. Because plants common in one County are not equally common in all. 3. Because the student is not supposed previously to be acquainted with many plants, and those he does know are probably only a few of the more common kind. 4. He is not desired to examine and compare *all* the examples: perhaps it will be better he should sometimes try his strength, by examining unknown Flowers which he may pick up in his walks.

EXAMPLE I.

L I G U S ' T R U M. Privet.

The Privet is a shrub common enough in hedges, in many parts of England. It generally blossoms in June, and its blossoms are white. Let us suppose a branch of it in blossom before us: that we are ignorant what plant it is; and are required to investigate it. We look into several of the Blossoms, and find 2 Chives in each. This circumstance informs us it belongs to the second Class. Turning to the beginning of the second Class at page 6, we find it contains two Orders, and that the Orders depend upon the number of Pointals: therefore looking again at the Flowers, we find 1 Pointal in each; so that our plant belongs to the first Order of the second Class. We find this Order subdivided into four parts; and observe that these subdivisions depend upon the regular or irregular form of the Petal, and upon the Blossom being fixed above or beneath the Seed-bud. In our specimen the Blossom is one *regular* Petal fixed beneath the Seed-bud. These circumstances correspond only with the first subdivision, which subdivision contains only one Genus; so that there can be no doubt but the Plant is a Ligust'rum. We find too that the Blossom is cloven into four parts, and that it is succeeded by a Berry containing 4 Seeds. Looking forward therefore to Ligust'rum, No. 18, page 7, we compare it with the generic description, and have the satisfaction to find it agree pretty exactly; and perfectly so with the Essential Character subjoined to it. As this Genus contains only

one

one Species, we soon determine that it must be the *Ligustrum vulgare* of Linnæus, or the common Privet.

EXAMPLE II.

A R U N ' D O. Reed.

Upon the banks of rivers, in wet ditches, and upon the borders of pools, the Reed is sufficiently common. It is a sort of large grass, five or six feet high, and flowers in June. Having got a specimen of this, we proceed to examine it systematically. At first sight we observe that the Flowers grow in panicles, and that each Flower contains 3 Chives. We therefore turn to the beginning of the third Class, (page 32.) and find *that* Class divided into three Orders, which depend upon the number of Pointals.* Each of our Flowers contains 2 Pointals, which brings us to the second Order. This Order is subdivided into four parts. The first subdivision contains the plants with Flowers scattered, or irregularly disposed, *one* only in each Empalement. Our plant agrees with the first circumstance, but not with the last, for we find *five* Flowers in each Empalement. The second subdivision contains *only two* flowers in each Empalement, therefore we pass that over, and come to

* N. B. The Introduction to this Class commences at page 27. Once for all, let it be observed, that the Student should accustom himself to read over very attentively, the Introduction to the Classes, until he be perfectly acquainted with the constitution of each, and the exceptions which are most likely to involve him in difficulties.

the third, with scattered flowers, and *several* in each Empalement. Before we proceed further, we just look at the last subdivision, but finding the *flowers without fruit-stalks, fixed to a long toothed seat, or Receptacle*, we immediately recur to the third subdivision in the 33d page. This subdivision contains seven Genera, and we compare the Characters of each with the plant in hand. The want of an Awn, and the woolliness at the Base of the Blossoms determines us to call it Arun'do. Turning therefore to Arundo, No. 99, page 116, we compare it accurately with the Generic Description, and find it correspond with that, as it does also with the essential character. But as the parts constituting the Flowers of Grasses are frequently very minute, we make use of the Botanical Microscope and the Dissecting Instruments to display them more clearly to the eye; * and likewise take the advantage of comparing them with the figures in the plate fronting page 29. Having determined it to be an Arundo, or Reed, the only difficulty remaining is to ascertain the Species. We see that only four species of Arundo are natives of Great Britain; and the circumstances of the five Florets in each Empalement, added to the flexibility of the Panicle, which we had observed whilst growing to be waved about with every wind, leave

us

* N. B. The Botanical Microscope and Dissecting Instruments may be had of the Publishers, or of the Country Bookfellers, price 1 os. 6d. This Microscope is now in a form more convenient for the Pocket, and is at the same time made to stand more steady when in use.

us no longer room to doubt that it is the Arun'do phragmites of Linnæus, or the common Reed.

EXAMPLE III.

P L A N T A ' G O. Plantain.

The Plantain flowers in June and July. It is very common in mowing Grass, and on the sides of roads. It is frequently stuck in the cages of Linnets and Canary Birds, who are fond of the seeds. Upon examining a specimen of this, we find that each Flower contains 4 Chives, nearly of the same length, and therefore we refer it to the fourth Class. At page 135 we find this Class includes three Orders, dependant upon the number of Pointals. Each of our Flowers contains only *one* Pointal, and therefore belongs to the first Order. This Order admits of seven subdivisions. The specimen we have, contains Blossoms of *one* Petal; this Petal is fixed *beneath* the Seed-bud, and there is but *one* Seed-vessel in each Flower. From these circumstances we look for it in the second subdivision, and finding by cutting across the Seed-vessel, that it is divided into two * cells, we conclude that it is a Planta'go, (No. 148.) That number occurs at page 142; we there compare it with the Generic

* To judge whether a Capsule consists of one or more Cells, the best method is to cut it through horizontally with a sharp knife, then carefully to pick out the seeds, leaving the dividing membranes entire. If it be very minute, cut off a thin slice horizontally, place it on the stage of the microscope, view it through the magnifier, and at the same time dissect it with the instruments.

Description, and finding it agree with *that* in most particulars, as well as with the Essential Character, we try to determine the species. There are six species of Plantain, natives of Great Britain. These Species are not subdivided, therefore we begin with the first; the *Planta'go ma'jor*; but the Leaves are not egg-shaped; nor are the stalks cylindrical. The *Planta'go me'dia*, which is the second, agrees pretty well: but the Leaves are not downy, nor is the spike of Flowers cylindrical. With the third Species it agrees in every particular; therefore we call it the *Planta'go lanceola'ta* of Linnæus, or the Ribwort Plantain.

EXAMPLE IV.

L O N I C E ' R A. Honey-suckle.

This Plant is very common in our hedge-rows, and is very universally known; but let us suppose a Foreigner, who never saw it before, struck with the beauty and the fragrance of its Blossoms, carrying a piece of it home for examination. Finding 5 Chives in each Flower, and the Tips not united, he refers it to the fifth Class. The Orders in that Class being determined by the number of Pointals, he knows it belongs to the first Order, for he observes only *one* Pointal in each Flower. This Order is subdivided into seven parts. The 4 *naked Seeds*, and the *rough Leaves*, immediately determine him to reject the first subdivision. The *blossom* being *fixed beneath the Seed-bud*, not corresponding with his Flower, he rejects the second, and passes on to the third subdivision, where he finds

* * * *Flowers of 1 Petal; superior.*

His Flower consists of 1 Petal, and this Petal is fixed *superior* to, or *above* the Seed-bud. This subdivision containing four Genera, he observes the three first have Capsules: but in the last the Seed-vessel is a Berry with 2 Cells; this circumstance, added to the inequality of the Blossom, and the Knob at the top of the Pointal, induces him to believe it to be a *Lonice'ra*. He looks for No. 250, (p. 222,) and, comparing the Flower with the Generic Description, is confirmed in his opinion. Under this Genus he finds only one Species, viz. the *Lonice'ra pericly'menum* of Linnæus, or Woodbind Honey-suckle.

EXAMPLE V.

D A U ' C U S. Carrot.

We select this as an example of the *Umbelliferous* or RUNDLE-bearing plants, (*See the introduction to the 5th Class.*)

The 5 Chives with Tips not united, and the 2 Pointals evident in each Floret, determine us to look for it in the second Order of the 5th Class. This Order admits of four subdivisions, 1st. *Flowers of 1 Petal; beneath.* But our plant has five Petals; therefore we go to the 2d, *Flowers of 5 Petals; beneath.* The Florets in hand have 5 Petals, but the Petals are not placed *beneath* the Seed-bud. The 3d subdivision contains imperfect Flowers, or Flowers without Blossoms; but our Florets have Blossoms composed of 5 Petals; therefore we pro-
ceeded

ceed to the * * * * *Flowers of 5 Petals; superior, and 2 Seeds: In RUNDLES.* All these circumstances agreeing with the plant before us, we must look for it here; but observing that this subdivision of the Order is farther divided into plants that have the FENCE *both general and partial*; into plants with the FENCE *only partial*; and into Plants *without any FENCE*; we examine the specimen, and find a Fence to each Rundle, and likewise a Fence to each Rundlet. The unequal size of the Petals; the winged Fence, and the prickly Seeds, agreeing with No. 109, *Dau'cus*, we turn to that Genus. Finding our plant agree with the Generic Description, and only one species under that Genus, we know it to be the *Dau'cus Caro'ta*, or wild Carrot.

EXAMPLE VI.

G A L A N ' T H U S. Snow-drop.

The Snow-drop, though not frequent in a wild state, is to be found in almost every Garden, and is among the first of our spring flowers. When we look at it attentively, the first circumstance which strikes us is the want of a Cup, but instead of that we find upon the fruit-stalk, a skinny or membranaceous sheath which covered the blossom in its infant state. The 6 chives direct us to the sixth Class, and the single Pointal fixes us to the first Order of that Class. This Order is subdivided into,

- * *Flowers with a cup and a blossom.*
- ** *Flowers with a sheath or husk.*
- *** *Flowers naked.*
- **** *Flowers imperfect.*

The

The want of a cup, and the presence of the skinny sheath teach us to expect it in the 2d subdivision, which contains 3 Genera. In the *Allium* the blossom is fixed beneath the Seed-bud, but in our plant it is above it. In the *Narcissus* there is a bell-shaped honey-cup and 6 petals, but our plant has 6 petals only, and no such bell-shaped honey-cup. It therefore must be *Galan'thus*. At No. 433, page 340, we read the generic description, and find it agree with our flower, but with the remark, that the 3 inner and shorter petals may be considered as a honey-cup. As there is but one species, our plant must therefore be the *Galan'thus nivalis*, or common Snow-drop.

EXAMPLE VII.

D A P H ' N E. Mezereon.

In February the Mezereon is in blossom, and, though rarely found wild, is often met with in the garden. Its Chives being 8 in number we turn to the eighth Class, and its single pointal confines our enquiries to the first Order. This being divided into *perfect* and *imperfect* flowers, we conclude that the flower before us belongs to the last subdivision, because it wants an emipalement. The character of *Daphne* corresponds with our flower, and refers us by the number, 526, to page 402. Here the examination of the generic description, and Essential character confirm our researches. We find two british Species, but in that before us, the flowers are sitting, and grow *by threes*; it must therefore be the *Daph'ne Meze'reum*, or common Mezereon.

I N T R O D U C T I O N .

EXAMPLE VIII.

L Y C H ' N I S. Cuckow-flower.

White or Red Campion; Batchelors Buttons; Lych'nis, it grows wild in woods and ditch-banks, flowering all summer. After examining several of the Flowers, and finding 10 Chives in each, and the Threads not united; observing too no vestige of any Pointals, we begin to suspect that it belongs either to the twenty-first Class, where the Chives and Pointals are contained in *separate* Flowers; or to the twenty-second Class, where the Chives and Pointals are found not only in separate Flowers, but these Flowers growing upon *distinct* Plants. In this state of doubt we go to the place where the plant was gathered, and, after examining several, at length find that the Flowers containing Chives, and the Flowers containing Pointals, grow upon *distinct* Plants. We therefore turn to the twenty-second Class, and finding the Orders of that Class founded upon the number of Chives, we look for it in the ninth Order, as the Flowers of that Order are said to contain 10 Chives. But this Order contains only the names of two plants with a † prefixed to them. By the Direction of the fourth rule for investigation, we search for these two plants, and find at page 473 the Generic Description of the Lych'nis agreeing exactly with our specimen, except in the circumstance of the Chives and Pointals being in distinct Flowers. This exception however is noticed in the character of the third species, and we find our plant therefore to be the Lych'nis dioica, or Campion Cuckow-flower.

EXAMPLE IX.

P Y ' R U S. Pear.

Finding about 20 Chives in each Blossom, we turn to the twelfth Class, which is the Class of 20 Chives. The Introduction to this Class, at page 503, informs us, that the number of Chives alone will not distinguish it from the preceding and ensuing Class; we therefore attend to the directions there delivered, and finding in our plant that the Cup is formed of a single concave Leaf; that the Petals are fixed to the *sides* of the Cup, and that the Chives do not stand upon the Receptacle, we conclude that we have classed it right; and seeing each Flower furnished with 5 Pointals, we look for the Genus under the fourth Order. This Order contains three Genera. In the last Genus the Cup is fixed beneath the Seed-bud, but in our Plant it is above the Seed-bud. In other respects it corresponds with the two first Genera. The Cup being cloven into 5 parts, and the Blossom being composed of 5 Petals, are circumstances common to both. But the fruit of the first is a Berry, containing 5 Seeds, and the fruit of the 2d is a fleshy Apple with 5 Cells and *many* Seeds. Hence it appears that our plant is undoubtedly the Py'rus, No. 682; and turning to the generic description at page 516, we are confirmed in this opinion. We next compare it with the only two British Species, and are soon enabled to determine whether we have got the Py'rus commu'nis, or the Py'rus ma'lus, *i. e.* the Pear or the Apple.

EXAMPLE

EXAMPLE X.

RANUN' CULUS. Crowfoot.

The beautiful shining yellow Blossoms of Crowfoot, and the frequency of it in pastures in the months of June and July, will probably attract our notice; especially as cattle leave it untouched, even when the pasture is bare. We therefore collect some of it; and finding a great number of Chives in each Blossom, we refer it to the Class of *many* Chives. The Introduction to this Class, at page 542, tells us, that the Chives stand upon the Receptacle and not upon the Cup. As this appears to be the case, we next examine the pointals, and finding them more than can readily be counted, we refer to the 7th Order of *many* Pointals. This Order includes nine Genera. The six first that occur have no Cup; but our Flower has a Cup of 5 Leaves. It is clear then that it must be some one of the other three. Upon an accurate examination we observe the little bag or Honey-cup at the claw of each Petal, and, governed also by the number of Leaves forming the Cup, and of petals composing the Blossom, we turn to the generic description of the Ranuncul^{us}, at page 571. Quite satisfied about the Gen^{us}, we observe the Species are numerous, and arranged according as the Leaves are *divided*, or *not divided*. In our specimen the Leaves are divided. We then compare it with each of the Species, and, from its open or expanded Empalement, its cylindrical fruit-stalks, its leaves with 3 divisions, many clefts, &c. find it to be the Ranuncul^{us} a'cris, or upright Crowfoot.

EXAMPLE XI.

L A ' M I U M. Archangel.

Or white or red Deadnettle. It grows every where upon ditch-banks, amongst rubbish, and in orchards.

Upon opening the Blossom we find 4 Chives; and as 2 of the Chives are considerably longer than the other two, we expect to find it in the 14th Class. After reading the Introduction to that Class, we have no doubt of having classed it right. We then observe that the two Orders in this Class are characterised from the Seeds being *naked*, or *covered*. In our specimen we find 4 *naked* Seeds at the bottom of the Cup; so that it belongs to the first Order. This Order admits of two subdivisions, founded upon the clefts of the Cup; our plant arranging under Cups with 5 Clefts, we carefully compare it with each of the generic characters; and, after some difficulty; guided by the bristle-shaped tooth on each side the Mouth of the Blossom; we pronounce it to be a Lamium. We shall get but little further information from the Generic Description at page 604, for this Class being a natural assemblage of plants greatly resembling each other, the differences are not very obvious, but, by closely attending to the Essential Character, we shall seldom be at a loss to determine the Genus. Upon reading the characters of the three British Species, we are soon determined by the taper-pointed, heart-shaped Leaves, &c. to call it the *La'mium al'bum*, or white Archangel.

EXAMPLE XII.

CHEI'RANTHUS. Wall-flower.

This plant is very generally known. It grows wild upon old walls, and is frequently cultivated in gardens.

Carefully remove the Empalement and the Petals, and you will find 6 Chives; two of which are shorter than the other 4. It belongs therefore to the fifteenth Class. The Orders of this Class depend upon the form of the Seed-vessel; and, after examining the specimen, you necessarily refer it to the first subdivision of the second Order; for the Seed-vessel is *long*, and the Leaves of the Cup stand upright and close to the Blossom. It is possible you must dissect several Flowers before you can ascertain the Genus; for this Class is composed of a natural assemblage of plants, whose Flowers bear a strong resemblance to each other, and the differences when this is the case, are not very obvious. At length, however, the small glandular substance on each side the base of the Seed-bud, determines you to refer it to No. 879, Chei'ranthus. Upon a comparison with the Generic Description, at page 698, you find it accurately described; and the shape of the Leaves, &c. put it beyond a doubt that it is the Chei'ranthus Chei'ri, or wall Gilli-flower.

EXAMPLE XIII.

ALTHÆ'A. Marsh-mallow.

Or Wymote. It naturally grows in salt marshes, but upon account of its medical uses it is cultivated in most gardens, and is pretty generally known.

Upon

Upon examining the Flower, we find the Chives numerous, and the Threads all united at the Base. Recollecting that this circumstance characterises the Flowers of the sixteenth Class, we find the Orders in that Class depend upon the number of Chives; and observing that the Flowers before us contain more than 10 Chives, we must expect to find the plant in the ORDER of *many* Chives. The three Genera contained in that Order nearly resemble each other; but the outer Cup being cloven into 9 parts, we *must* suppose it No. 904. Under that Genus, at page 735, we find only one Species, and as our plant agrees both in the generic and specific character, we pronounce it to be the *Althæa officinalis* or Marsh-mallow Wymote.

EXAMPLE XIV.

SPAR'TIUM. Broom.

From the appearance of the Chives, which are all united by the Threads, we should be at a loss whether to expect this plant in the sixteenth or in the seventeenth Class; but the butterfly-shape of the Blossom determines us to the latter. After reading the Introduction to this Class, (at page 744,) we observe that the Orders depend upon the number of Chives. The Flowers of our plant contain 10 Chives; and, as the Threads are *all united*, we are at no loss to see, that it belongs to the first subdivision of the fourth Order. We now compare it with the characters of the different Genera; but, as the Genera of this Class are a natural assemblage, and, from their similarity, admit of one *general*

NATURAL

NATURAL CHARACTER, the differences between each Genus must depend upon minute circumstances, and therefore demand a good deal of attention. At length we perceive; from the woolly Summit, and the threads clipping the Seed-bud closely, that it must be the Spartium, No. 929. Comparing it therefore with the Generic Description of Spartium, (page 756,) and still further confirmed by the Essential Character, we find it must be the Spar'tium scoparium, or common Broom.

EXAMPLE XV.

LEON'TODON. Dandelion.

Or Pifs-abad. This plant is in blossom during great part of the spring and summer; it grows in pastures, road sides, and the uncultivated parts of gardens. At the first view we perceive its structure to be very different from any we have examined before; we hardly know what to call Chives or what Pointals. The fact is this; this is a true COMPOUND FLOWER, or a flower formed of a number of little flowers, or (Florets,) sitting upon one *common* Receptacle, and inclosed by one *common* Empalement. Turning to COMPOUND FLOWERS and FLORETS in the Dictionary, and reading the explanation of Compound Flowers, with references to the fourth plate, we soon attain a true idea of the matter; and therefore separating one of the Florets, and examining it carefully, we find 5 Chives with the Tips united, and the Pointal passing through the cylinder formed by the union of the Tips. We therefore refer it to the nineteenth Class. By studying the Introduction to that Class, (at

(at page 813,) we understand still more clearly the nature of Compound Flowers, and the Florets that compose them. We learn too how the Orders are constituted; and, upon examing the Flower before us, and finding that all the Florets are furnished with Chives and Pointals, we perceive that it belongs to the first Order. From the shape of the Blossoms of the Florets, * which are all long and narrow, we know that we must look in the first subdivision of that Order. Perceiving that the Receptacle is an important circumstance in the character of Compound Flowers, we pull off all the Florets in one of the Flowers, and expose the Receptacle to view. We find it naked; *that is*, not beset with chaffy or bristly substances. We find too a Feather adhering to the Seeds; and observe the scales of the Empalement flexible, some of them being bent back. These characters corresponding pretty well with the Leon'todon, No. 991, we fix upon that as the Genus. One circumstance, however, makes us doubt; the feather of our plant is not properly *downy*, but consists of simple hairs issuing from the top of a slender pillar fixed to the Seed.* But as we look forward to the generic description for fur-

* *Feathers* of Seeds in the Compound Flowers are either formed of *simple* hairs, or of hairs set with other finer hairs; in the former case the Feather is said to be *hairy*, in the latter it is called *downy*. Now as these circumstances must be attended to, in forming Generic distinctions, it is necessary to apprise the learner, that the Feather must be exposed to the air a little time before he can pronounce whether it is hairy or downy, for whilst it is moist in the flower, the down often lies so close to the hair as not to be visible.

ther information, at page 838, we find this difficulty noticed in an observation subjoined to the Essential Character. As there are three species of this genus natives of Great Britain, we read the specific characters, and, from the deep notches in the leaves, judge our plant to be the Leon'todon Tarax'acum, or common Dandelion.*

It will be very proper for the learner thus to examine several more Genera of this Class, as the Coltsfoot, the Burdock, the Thistle, the Tansy, the Daisie, and the Groundsel; for, by doing this, he will soon overcome the difficulties which present themselves.

It may not be amiss for him to begin with a Sunflower, which, though not an English plant, and therefore not to be found in this Book, may yet, from the large size of its Florets, enable him to form a good idea of the structure of compound flowers.

We are at first surprized to find the Violet, and other simple Flowers, in the same class with the compound Flowers; but we soon recollect that the
 class

* This plant was selected as an example, partly because it is known to almost every child, and partly because it is an exception to the usual accuracy of the Linnæan characters, and should teach the student to exercise his own powers of observation. He may possibly have referred it to the Genus Crepis, to which it really ought to belong, and there he will also find it, at page 853, with a reference back to Leontodon.

classic character is not taken from the *appearance* of the Blossoms, but from the circumstance of the TIPS being UNITED.

By paying a proper attention to the nature of Compound Flowers, we soon learn to distinguish them from double Flowers : and when by accident or cultivation any of the true compound Flowers become double, we shall always find it depends upon the multiplication of some of the parts, and the exclusion of others.

EXAMPLE XVI.

A' R U M. Cuckow-pint.

Not unfrequent in stiff soils. It generally grows in shady places ; in roughs, and at hedge bottoms. It is sometimes called Wake-robin, or Lords and Ladies. It flowers in May.

There is something so very peculiar and unusual in the structure of this Flower, that we find ourselves altogether at a loss how to set about the investigation of it. What shall we call this purplish long substance that stands upright within the sheathing empalement ? We remove the Empalement to examine the lower part of it, and there we find it surrounded by the Seed-buds. It must therefore be a sort of Fruit-stalk, or an elongated Receptacle. Upon a closer inspection we observe a number of hair-like Fibres or Threads, but without Tips. We now discover something like Tips without Threads, and from their situation we begin to think the plant

d 2

belongs

belongs perhaps to the twentieth Class. As the Tips are numerous, and the Orders depend upon the number of Chives, we look for it in the Order of many Chives, where we find two Genera; and from their characters we think it most likely to be the *A'rum*, No. 1119, but we are by no means certain. We turn therefore to that Genus, (p. 1004) and here we are referred to the next Class, and there we feel every doubt dispelled. The generic description, the specific character, and the observations, all conspire to identify the plant before us; we congratulate ourselves that we were not puzzled by any common circumstance; and in reading the observations subjoined to the species, we find that it has been removed here in consequence of the suggestions of the younger Linnæus, who first taught us properly to understand the structure of this truly singular flower.

The first Order in the Class Gynandria requires a particular examination, and, if we know the *Orchis*, or any other Genus contained therein, it will be well to compare it with the descriptions. The *Orchis* is frequent in moist clayey soils: it bears large Spikes of purplish Flowers, and blossoms in April, May, June, and July.

EXAMPLE XVII.

B E T ' U L A. Birch.

The Birch is a tree common enough in Great Britain, and very generally known. The Flowers are disposed in Catkins; some of the Catkins are composed

composed of Florets which contain only Chives, but we find others upon the same tree, whose Florets contain only Pointals. This circumstance makes us refer it to the twenty-first Class. As each of the barren Florets contains 4 Chives, we look for it in the fourth Order. The Catkins, and the number of Flowers or Florets in each scale corresponding with our specimen, we suppose it the *Bet'ula*, No. 1147. We turn forward to that number, and the generic description at page 1065, confirms our supposition. The Species are two, but the shape of the leaves directs us to call our plant the common Birch, or the *Bet'ula al'ba*.

EXAMPLE XVIII.

HU'MULUS. Hop.

The Hop flowers in June. It grows common in the hedges in many parts of England, though cultivated in few.

We examine many of the Flowers, and find 5 Chives in each, but no appearance of Pointals. We believe therefore that the Chives and Pointals grow upon distinct plants, and accordingly turn to the twenty-second Class. As we have 5 Chives in each Flower, and the Tips *not united*, we find it in the fifth Order. That Order containing only one Genus, there can be no room for doubt. We therefore call it *Hu'mulus*, No. 1221. The generic description at page 1117 corresponds; and if we afterwards meet with a plant bearing only fertile Flowers, that is, Flowers with Pointals, but no

Chives, we shall find them described likewise. There is only one Species, viz. the common Hop, or the *Hu'mulus lu'pulus* of Linnæus.


These examples will, it is supposed, afford sufficient instruction to the learner, but, if he wishes for others, he may consult the Table of the Classes facing page xv.

The experienced Botanist will immediately perceive that I have not given an example out of every Class, but he hardly need be told that the *MONANDRIA* class contains no species likely to fall soon under the notice of the learner; that the *HEPTANDRIA*, the *ENNEANDRIA*, and the *POLYADELPHIA*, contain each only one Genus; that in the *DODECANDRIA* the plants commonly known being exceptions to the more obvious Classic character, would at first only tend to perplex us; and that the *POLYGAMIA* Class requires no particular illustration, though, for the sake of those who may think otherwise, the common Ash, or *Frax'inus excel'sior*, the common Crosswort, or *Valan'tia Crucia'ta*, and the Sycamore tree (*A'cer Pseudo-Plat'anus*) may be pointed out as examples.

It still remains to say something of the twenty-fourth Class. The plants in that Class are not arranged like the other parts of the system, and therefore cannot be investigated in the same manner. They are divided into four natural assemblages, viz. *FILICES*, *MUSCI*, *ALGÆ*, and *FUNGI*. These partake of nothing in common, that can with propriety

propriety bring them into the same Class, unless it be the difficulty of discerning their minute and inconspicuous Flowers. The generic and specific characters being taken from their general external appearance, we can only recommend a careful perusal of the Introduction to the Class, and an intimate acquaintance with the terms made use of. This being done, the industry of the student cannot fail of its proper reward.

After conducting my Pupils in this familiar manner through the different parts of the System, I must suppose that they no longer stand in need of my assistance, and that they will soon find themselves equal to the investigation of every British plant which may come before them. But this is not all: They will find that the Study of Nature is ever attended with pleasing reflections; that the Study of Botany, in particular, independent of its immediate use, is as healthful as it is innocent. That it beguiles the tediousness of the road, that it furnishes amusement at every footstep of the solitary walk, and, above all, that it leads to pleasing reflections on the bounty, the wisdom, and the power of the great CREATOR.

 *The Author will thankfully receive any communications that can tend to render this book more perfect; and, in case the public ever calls for another edition, such new facts or observations as occur, shall be inserted, with suitable acknowledgments.*

D I R E C T I O N S

F O R

DRYING *and* PRESERVING

SPECIMENS of PLANTS.

MANY methods have been devised for the preservation of plants; we shall relate only those which have been found most successful.

First prepare a press, which a workman will make by the following directions.

Take two planks of well-seasoned wood not liable to warp. The planks must be two inches thick, eighteen inches long, and twelve inches broad. Get four male, and four female screws; such as are commonly used for securing sash windows. Let the four female screws be let into the four corners of one of the planks, and corresponding holes made through the four corners of the other plank for the male screws to pass through, so as to allow the two planks to be screwed tightly together. It will not be amiss to face the bearing of the male screws upon the wood, with iron plates; and, if the iron plates went across from corner to corner of the wood, it would be a good security against the warping.

When

DIRECTIONS *for drying*

When a press is not at hand, the specimens may be dried tolerably well between the leaves of a large folio book, laying other books upon it to give the necessary pressure; but in all cases too much pressure must be avoided.

Secondly, get a few sheets of strong card paste-board, and half a dozen quires of large, soft, spongy paper: such as the stationers call Blossom Blotting Paper, is the best.

The plants you wish to preserve should be gathered in a dry day, after the sun has exhaled the dew; taking particular care to collect them in that state wherein their generic and specific characters are most conspicuous. Carry them home in a tin box, which may be made about nine inches long, four inches and a half wide, and one inch and a half deep. Get the box made of the thinnest tinned iron that can be procured; and let the lid open upon hinges. The box should be painted, or lacquered, to prevent it rusting. If any thing happens to prevent the immediate use of the specimens you have collected, they will be kept fresh two or three days in this box, much better than by putting them in water; but the Blossoms of some plants are so very delicate, that they shrivel in a very short time, and often before you can well examine them. In this case, put the stems in water, cover the whole with a glass bell, like those used in gardens, or the receiver of an air-pump will do; expose them to the sun, and, in half an hour, you will find them compleatly expanded. When you
are

are going to preserve them, lay them down upon a pasteboard, as much as possible in their natural form; but, at the same time, with a particular view to their generic and specific characters. For this purpose it will be adviseable to separate one of the flowers, and to display the generic character. If the specific character depends upon the flower, or upon the root, a particular display of that will be likewise necessary. When the plant is thus disposed upon the pasteboard, cover it with eight or ten layers of the blotting paper, and put it into the press. Exert only a small degree of pressure, for the first two or three days; then examine it, unfold any unnatural plaits, rectify any mistakes, and, after putting fresh paper over it, screw the press a little harder. In about three days more, separate the plant from the pasteboard, if it be sufficiently firm to allow of a change of place; put it upon a dry fresh pasteboard, and, covering it with fresh blossom paper, let it remain in the press a few days longer. The press should stand in the sun-shine, or within the influence of a fire, for nothing is so destructive to the beauty of the Specimens as a long continued dampness.*

When it is perfectly dry, the usual method is to fasten it down with paste or gum water, on the right hand inner page of a sheet of large strong writing-paper. It requires some dexterity to glue the plant neatly

* One of my correspondents assures me, that he finds old broad cloth better than paper, for absorbing the moisture of the plants; but I have not had occasion to try it.

neatly down, so that none of the gum or paste may appear to defile the paper. Press it gently again for a day or two, with a half sheet of blossom-paper between the folds of the writing paper. When it is quite dry, write upon the left hand inner page of the paper, the name of the plant; the specific character; the place where, and the time when it was found; and any other remarks you think proper. Upon the back of the same page, near the fold of the paper, write the name of the plant, and then place it in your cabinet. A small quantity of finely powdered arsenic, or corrosive sublimate, is frequently mixed with the paste or gum water, to prevent the devastations of insects; but the seeds of Staves-acre finely powdered, will answer the same purpose, without being liable to corrode or to change the colour of the more delicate plants. Some people put the dried plants into the sheets of writing paper, without fastening them down at all, which I think much the most useful way: others only fasten them by means of small slips of paper, pasted across the stem or branches. In the twenty-fourth Class some of the Genera contain a great number of species; where this is the case, and the specimens are small, several of them may be put into one sheet of paper, but a separate sheet to each species is to be preferred.

Another more expeditious method is to take the plants out of the press, after the first or second day; let them remain upon the pasteboard; cover them with five or six leaves of blossom paper, and iron them with a hot smoothing iron, until they are perfectly

fectly dry. If the iron be too hot, it will change the colours; but some people, taught by long practice, succeed very happily. This is quite the best method to treat the different Species of Orchis and other slimy mucilaginous plants.

I am indebted to T. VELLEYS Esq. of Bath, for the following improved method of drying plants, which, as it is the result of much experience, cannot but prove acceptable to the practical botanist. I consider his permission to make it public as an additional obligation, and cannot avail myself of it to better purpose, than by adopting his own words, which I shall therefore transcribe from his Letters.

—— “ I place the plant when fresh, between several sheets of blotting paper, and iron it with a large smooth heater, pretty strongly warmed, till all the moisture is dissipated. The flowers and fructification I fix down with gum, upon the paper on which they are to remain, and iron them in that state, by which means they become almost incorporated into the paper, in their proper forms. Many colours I have been able to fix, which frequently forsook the flowers during the gradual and tedious process of sand-heats, and other methods which I had before tried.

“ Some plants require a more moderate heat than others: experience must determine this; and herein consists the nicety of the experiment. The forms and colours seem to remain more perfect by this mode than by any other I have been
“ able

DIRECTIONS *for drying*

“ able to try.”——“ If the mucilaginous and succulent plants do not succeed so well with respect to their colour, under the hot smoothing iron, I have always found that they failed full as much, or more, when preserved by other means. The colours of the blossoms in the didynamious class, I could never fix by a sand-heat. Several of these, as well as of the rough-leaved plants, I have preserved tolerably well by ironing.

“ It is necessary to observe, that in compound flowers, or in those of a solid and more stubborn form, as the *Centaurea*, &c. some little art must be employed in cutting away the under part, by which means the profile and form of the flowers will be more distinctly exhibited, provided they are to be pasted down.”——“ After all, it must be remembered that a plant, when preserved in a most perfect state, is a kind of Hygrometer, and if exposed for any time to a moist atmosphere, or laid up in a situation which is not perfectly dry, will imbibe a degree of humidity that must soon prove injurious to the beauty of the specimen.”

Mr. Vellej sent me some plants dried by these means, which are the most beautiful specimens I have seen. The facility of drying plants by ironing, must render this method particularly acceptable to the travelling botanist.

Where no better convenience can be had, the specimens may be disposed systematically in a large folio book; but a vegetable cabinet, called a *Hortus ficcus*, or an *Herbarium*, is, upon all accounts,
more

more eligible. In plate XII. you have a section of an Herbarium, in the true proportions it ought to be made, for containing a compleat collection of British plants. By the assistance of this drawing, and the adjoining scale, a workman will readily make one. The drawers must have backs and sides, but no other front than a small ledge. Each drawer will be fourteen inches wide, and ten inches from the back to the front, after allowing half an inch for the thickness of the 2 sides, and a quarter of an inch for the thickness of the back. The sides of the drawers, in the part next the front, must be sloped off in a serpentine line, something like what the workmen call an ogee. The bottoms of the drawers must be made to slide in grooves cut in the uprights, so that no space may be lost between drawer and drawer. After allowing a quarter of an inch for the thickness of the bottom of each drawer, the clear perpendicular space in each must be as in the following table.

I. Two tenths of an inch.	XIV. Three inches and eight tenths.
II. One inch and two tenths.	XV. Three inches and four tenths.
III. Four inches and six tenths.	XVI. One inch and three tenths.
IV. Two Inches and three tenths.	XVII. Two inches and eight tenths.
V. Seven inches and eight tenths.	XVIII. Six tenths of an inch.
VI. Two inches and two tenths.	XIX. Ten inches.
VII. Two tenths of an inch.	XX. One inch and nine tenths.
VIII. One inch and four tenths.	XXI. Four inches and four tenths.
IX. Two tenths of an inch.	XXII. Two inches and six tenths.
X. Two inches and eight tenths.	XXIII. One inch and two tenths.
XI. One inch and two tenths.	XXIV. Seventeen inches
XII. Three inches and five tenths.	
XIII. Two inches and four tenths.	

see P 112.

DIRECTIONS *for drying*

This cabinet shuts up with two doors in front, and the whole may stand upon a base, containing a few drawers for the reception of duplicates and papers. Where a very compleat collection of plants of the Cryptogamia class is intended, the space in the 24th drawer will be insufficient; but this may be remedied, by allotting the drawers in the base of the cabinet to that purpose.

In addition to the methods of preparing a Hortus ficcus already pointed out, I am desired by my friend Mr. Whateley, Surgeon, in London, to insert the following account of a method which he has used with the greatest advantage; and such of my readers as observe his rules, and execute them with adroitness, will find their attentions well rewarded.

“ Procure a compleat Specimen of the plant,
 “ not wet, not injured by insects, with the flowers,
 “ seeds, leaves, and root, (if the plant will admit
 “ of it,) and adapted in the larger plants to the
 “ size of the paper.

“ Remove the dirt, decayed leaves, and other
 “ unnecessary parts. The plant must then be laid
 “ upon the inside of a sheet of common cap paper,
 “ in the exact part of it where it is intended to
 “ remain, to be expanded and compressed in the
 “ following manner; but, previous to that, the
 “ underwritten apparatus must be ready, viz. a
 “ great number of scraps of the same cap paper,
 “ from one to four inches square, rubbed between
 “ the hands till soft—(if the paper is stiff, it will
 “ not

“ not yield sufficiently to the pressure of the sand,
“ which would make the plant shrivel,)—some small
“ leaden or other flat weights—a few small books—
“ and a wooden box filled with clean dry sand;
“ that which I have always used, and would re-
“ commend, is a strong oak box that is brought
“ out of Cornwall with tin; it is easily procured,
“ and bears a summer’s roasting. The cracks and
“ chinks should be pasted over with strong paper,
“ on the inside. The neatest sand is the white
“ writing silver sand, but any other kind that is
“ dry and sifted will do. The flowers and leaves
“ at the upper part of the plant are first to be co-
“ vered separately, with some of the scraps of
“ paper; one of the weights, or a small book, is
“ afterwards to be put upon them. The next flowers
“ and leaves are then to be covered in the same
“ manner; and so on to the lower part of the
“ plant, till the whole are expanded; and as many
“ weights or books put upon the paper, as are suf-
“ ficient to keep the different parts of the plant in
“ the intended form; and, as the beauty of the
“ specimen very much depends upon this part of
“ the process, each large petal ought to be separately
“ laid flat with a piece of paper, and the utmost
“ care taken, that every part of the plant is laid
“ down without folds, which may be done in gene-
“ ral in a short time.

“ The left hand leaf of the sheet of paper is
“ then to be brought in contact with the other half,
“ leaving the plant and papers between them,
“ which may be done by removing carefully the
Vol. III. e “ weights

DIRECTIONS *for drying*

“ weights and books to the outside of the paper.
 “ —If more than one plant is intended to be dried
 “ at the same time, the weights may be taken off,
 “ and two or three small books placed upon the
 “ paper, which should be carried in this state to
 “ another table, by taking hold of each end of it.

“ Plants of the Genus *Potamogeton*, or others
 “ that grow in water, ought to be put into the
 “ sand, without loss of time, and well pressed,
 “ else they are very apt to dry and shrivel.

“ When all the plants are prepared, a layer of
 “ sand, an inch deep, is to be put into the box,
 “ and one of the plants, with the books placed
 “ upon it. These last are to be carefully removed,
 “ and a layer of sand, rather deeper than the
 “ former, instantly put upon the paper. The
 “ other plants are afterwards to be placed and
 “ covered in the same manner, till the whole are
 “ finished. This done, every part of the sand
 “ must be gently pressed down by the foot, and
 “ the degree of pressure regulated by the nature of
 “ the plants. If they are stiff and firm, as the
 “ Holly or Furze, much pressure is required; if
 “ tender and succulent, a lesser degree is better,
 “ for fear of extravasating the juices, which would
 “ injure the colour of the plant; but particular
 “ care should be taken to make a sufficient degree
 “ of pressure upon the expanded blossoms, that
 “ they may not shrivel in drying.

“ The

“ The box is then to be carefully placed before
“ a fire, or in a gentle oven, as may be most con-
“ venient, alternately changing the sides of the
“ box to the fire, once or twice a day. In two or
“ three days the plants will be perfectly dry: the
“ sand must then be taken out with a common plate,
“ and put into a spare box, and the papers, with
“ the plants, carefully taken out also, put into a
“ sheet of writing paper, and kept in a very dry
“ situation, else the beauty of the plant will go
“ off.

“ This method of preserving plants is, from much
“ experience, preferable to any other, and has
“ every advantage attending it that can be wished
“ for. It dries most of them of a fine natural and
“ durable colour, as well in the flowers as the
“ leaves; but it will be found upon trial, that a
“ different degree of heat is suitable to different
“ plants, and that some will dry much better than
“ others. I have always found the fewer plants
“ there were in the box at a time, and the quicker
“ the heat, the better the colours were. Those
“ plants that have coloured flowers should always
“ be placed uppermost, else their colour will be
“ injured by the moisture from the others.”



A

D I C T I O N A R Y

O F

ENGLISH BOTANICAL TERMS,

With the corresponding TERMS of LINNÆUS.*

ABORTIVE (abortivi flosculi) producing no seed. See Barren.

ABRUPT (abruptus) when a winged leaf ends without a tendril or a little leaf. Pl. 8. fig. 53.

ACORN. The seed of the *Oak*.

ALTERNATE (alternus) branches, or leaves; as the leaves of *Borrage*, or *Chequered Daffodil*. Pl. 9. f. 3. (d. d. d. d. d.) Pl. 8. f. 54.

ANNUAL (annuus) living only one year; as the *Larkspur*.

ANGULAR (angulatus) **STEM**, &c. having edges or corners: opposed to cylindrical. A stem or stalk may have 1, 2, 3, 4, or more angles or corners. The *White Archangel* hath 4.

..... **CAPSULE**; as in *Flower de Luce*, or *Flag*.

APPROACHING (connivens) **LEAVES**; bent inwards towards the stem. Pl. 9. f. 5. (a. a.)

..... **PETALS** converging to the centre of the flower, as in the *Pæony*. *Globe Flower*.

* The plants referred to in this Dictionary, for the sake of illustrating the different Terms, are for the most part natives of this Island, and are quoted by their most common English names, because the reader who recollects them will immediately, and without further trouble, be able to form the right idea which the term is intended to convey; and as these names are inserted in the index, he may easily turn to the proper generic and trivial name. The instances taken from exotic plants, are chiefly such as are cultivated in almost every garden, and are introduced only when an English plant was wanting to which the term could be properly applied, or when it was thought that the exotic was more commonly known and more easily attainable than the native.

..... THREADS; as in
Borrage.

..... TIPS; leaning to-
wards each other; as in the *White*
Archangel and *ivy-leaved Gill*.

ARROW-SHAPED (*sagittatus*)
LEAF; shaped like the head of an
arrow, as the leaves of *Sorrel*; the
Small or *Great Bindweed*. Pl. 7. f. 13.

..... TIPS; as in the
Crocus. *Elder*.

..... PROPS; as in the *Pea*.

ASCENDING (*ascendens*)
growing first horizontally and then
bowed upwards. It is applicable ei-
ther to *Leaves*, to *Stalks*, to *Stems*, as
in spiked *Speedwell*, or to *Chives*, as
in all the *Speedwells*. See the *Chive*
next below (*a.*) in pl. 1. f. 3.

AWL-SHAPED (*subulatus*)
slender, and becoming finer to-
wards the end, like an awl. Pl. 7.
f. 3. Pl. 5. f. 15. (*a.*) as the *Leaves*
of *Rock Stone-crop*.

..... THREADS; as in
Crocus. *Borrage*. *Daffodil*. *Hawthorn*.

..... SEEDS; as in *Shep-
herds Needle*.

AWN (*rista*) the slender sharp
substance growing to the valves of
corn or grist, and frequently called
a beard. It is remarkable enough
in *Oats* and *Barley*. It is sometimes
used to signify a sharp point termi-
nating a leaf, &c. Pl. 2. f. 21.
(*b. b.*) f. 23. (*b. b.*)

BAG (*folliculus*) a distended
bladder-like seed-vessel, opening on
one side, as in the *Periwinkle*, or
Bulbifer Scab.

BARE (*nudus*) a bare stem,
destitute of leaves.

..... leaf, opposed
to hairy, woolly, &c.

BARK (*cortex*) the universal
covering of the stems, roots, and
branches of vegetables. It is gene-
rally spoken of as *inner* and *outer*.
Blossoms are an expansion of the
inner, and empalements are a con-
tinuation of the *outer* bark.

BARREN (*masculi*) (*staminei*
flores) FLOWERS, those that produce
no perfect seeds. The barren flowers
are generally those that have
chives, but no pointals. Flowers
that have only pointals are some-
times barren, owing to the absence
of other flowers that have chives.
In the Ruddled flowers (Class V.
Order II.) it is not uncommon to
have several of the florets barren,
though they are furnished both
with chives and pointals; perhaps
owing to some imperfection in the
pointals; but future observation
must determine this matter. Pl. 1.
f. 21. *a.* 22. *a.* 23.

BASE (*axillaris*) that part of a leaf,
&c. nearest to the branch or stem.

..... OF THE LEAVES OR BRANCHES.
Flowers or fruit-stalks are often said
to grow at the *base* of the leaves, or
the branches; that is, when they
are placed at the bottom of a leaf
or branch, and on the inner side,
where it joins to the stem. Pl. 9.
f. 5. (*m.*) the fruit-stalks of the
Common Pimpernel; the *Great Peri-
winkle*, and the *Flowers* of the *Com-
mon Calamint*, are examples.

BATTLEDORE-SHAPED
(*dolabriformis*) and of unequal
thickness like an axe.

BEADED (*granulatus*) consist-
ing of many little knobs connected
by small strings. As the roots of
the *White Saxifrage*.

BEARDED

BEARDED (*barbatus*) beset with straight parallel hairs.

BELL-SHAPED (*campanulatus*) the idea this term is intended to convey cannot well be mistaken; examples of it occur in the *Cup* of the *Cherry*; in the *Blossoms* of the *Convolvulus* or *Lily of the Valley*; and in the *Honey-cup* of the *Wild Daffodil*. Pl. 5. f. 1. (a.) Pl. 4. f. 2. 3. 4. 5.

BENEATH (*inferus*) a *Blossom* is said to be *beneath* when it includes the seed-bud and is attached to the part immediately below it, as the blossom of *Sage*; *Borage*; *Convolvulus*. *Polyanthus*.

..... a **SEEDBUD** is said to be *beneath* when it is placed below the attachment of the blossom, and therefore not included within it; as in the *Honey-suckle*; *Currant*; *Hawthorn*.

BERRY (*bacca*) a pulpy seed-vessel without valves; in which the seeds are naked, as in the *Gooseberry* or *Elderberry*. Pl. 5. f. 19.

BIENNIAL (*biennis*) plants or roots; are those which continue alive two years.

BIRDS-FOOTED (*pedatus*) bearing some resemblance to the feet of land fowl; as the leaves of the *Passion Flower*, or the seed-vessel of the *Bird's-foot Trefoil*. Pl. 7. f. 49.

BITTEN (*præmorsus*) not tapering to a point, or ending in any even regular form, but appearing as if bitten off; as in the root of *Devil's-bit*; and the petals of common and *Marshmallows*. Pl. 7. f. 18.

BILL (*rostrum*) a long awl-shaped substance resembling the bill of a Wood-cock; as in *Shepherd's-Needle*; or *Crane's-bill*. Pl. 5. f. 15. (a.)

BLADDER-SHAPED (*inflatus*) distended like a blown bladder; as is the cup of the *Bladder Campion*, and the blossom of the *Figwort*.

BLISTERED (*bullatus*) when the surface of a leaf rises high above the veins, so as to appear like blisters.

BLOSSOM (*corolla*) one of the parts of a flower. It may consist of one or more *Petals*; and is formed by an expansion of the inner bark of the plant. Pl. 4.

BLUNT (*obtusus*) opposed to *sharp*, as the leaves of the *Spiked Speedwell*; the cup of the *Convolvulus*; and the Capsule of the *Yellow Rattle*.

BOAT-SHAPED (*navicularis*) like a little keel-bottomed boat; as are the valves of the seed-vessels of the *Woad* and the *Mithridate*. Pl. 5. f. 13.

BORDER (*limbus*) the upper spreading part of a blossom of one *Petal*; as in the *Primrose* and *Auricula*. It is sometimes used to signify the thin membranaceous part of a seed, or seed-vessel. Pl. 4. f. 1. (b. b.)

BOWED (*arcuatus*) bent like a bow.

..... inwards (*incurvatus*.)

BRISTLES (*setæ*) strong, stiff, cylindrical hairs.

BRISTLE-SHAPED (*setaceus*) slender, and nearly cylindrical; as the straw of the *least Bullrush*; the leaves and props of the *Asparagus*.

BROAD-

BROAD-TOPPED-SPIKE (corymbus) a spike wherein each of the flowers stands elevated upon its proper fruit-stalk, so that they all rise to nearly the same height.

Exemplified in the *Pear* and the *Common Bethlem Star*. Pl. 6. f. 7.

BUD (gemma) a protuberance upon the stem or branches, generally scaly, and gummy or resinous. It contains the rudiments of the leaves, or flowers, or both, which are to be expanded the following year.

BULB (bulbus) may be considered as a *Bud* placed upon the root. It contains the rudiments or embryo of a future plant. Bulbs sometimes are found upon the stem, as in some species of *Garlic*.

A **BULBOUS ROOT** (bulbosus) is either

SOLID, as in the *Tulip*. Pl. 11. f. 3.

SCALY, as in the *Lily*. Pl. 11. f. 4. or

COATED, as in the *Onion*. Pl. 11. f. 2.

BUNCH (racemus) a fruit-stalk furnished with short lateral branches. The *Grape*, the *Currant*, and the *Barberry* are instances. Pl. 6. f. 8.

BUNDLE (fasciculus) when several flowers stand on their respective fruit-stalks, which grow nearly from the same point, and rise to the same height; as in the *Sweet William*.

BUNDLED (fasciculatus) **LEAVES**, when they arise nearly from the same point and are crowded together; as in the *Larch*. Pl. 9. f. 3. (f.)

..... **Roots**; a sort of tuberous roots in which the knobs are connected without the intervention of threads, as in the *Pæony*.

BUTTERFLY-SHAPED (papilionaceus) from an imaginary resemblance that some blossoms bear to that insect. The *Pea* and the *Broom* furnish examples. See the introduction to the 17th class; and also pl. 4. f. 13. 14. 15. 16. 17.

CAPSULE (capsula) a dry hollow seed-vessel, that opens naturally in some determinate manner; as at the Side by a small hole in *Orchis* and *Campanula*; horizontally in *Pimpernel*; longways in *Convovulus*; at the bottom in *Arrowgrass*; or at the top as in most plants. See pl. 5. f. 6. 9. 14.

CATKIN (amentum) is a composition of flowers and chaff, on a long receptacle, resembling a Cat's tail. The *Willow*, the *Hazel*, and the *Reedmace*, are instances. Pl. 6. f. 12.

CELL (loculamentum) having cells (locularis) a vacuity in the capsule for lodging the seed. Capsules have either one cell as in *Primrose*: two as in *Thornapple*: three as in *Lily*: four as in *Spindletree*: five as in *Rue*: six as in *Asarabacca*, &c. Pl. 3. f. 4.

It also signifies the vacuity in the tips that contains the dust.

CENTRAL (flores flosculosi) **LEAVES**, those that occupy the middle part of a compound flower; as the yellow ones in the middle of a common *Daisey*; pl. 4. f. 24. (b.) and it likewise is used to signify the flowers in the middle part of a rundle.

..... LEAF-STALK is fixed not to the base, but to the middle part of a leaf, as in the garden *Nasturtium* and *Marsh Pennywort*. Pl. 9. f. 4. (a.)

CHAFF (palea) a thin membranaceous substance growing from a common receptacle to separate the florets from each other, as in *Teasel*; *Scabious*; *Willow*; *Burdock*.

CHAFFY (acerofus) LEAVES; the leaves of the *Fir*, the *Yew*, the *Pine*, and the *Cedar* are so called. Pl. 9. f. 3. (c.)

..... RECEPTACLE, FLOWER, or HUSK, (paleaceus) beset with a substance like chaff.

CHANNELLED (canaliculatus) LEAVES; having a deep furrow or channel extending from the base to the end.

CHIVE (stamen) open the blossom of a *Tulip* or *Lily* and you will see six long threads placed round the central pillar, with a tip on the top of each thread. One of these threads together with its tip is called a chive. Pl. 3. f. 2. (b. b. b. b. b. b.) f. 3. (h. i.) f. 6.

CIRCULAR (subrotundus) nearly in the form of a circle, as are the leaves of the *Alder*, or the petals of the *Strawberry* and *Hawthorn*. Pl. 7. f. 2.

CIRCUMFERENCE (radius) the part of a circle most distant from the centre. Thus in a shilling or half crown the inscription is round the circumference. It is used in botany to express the florets that are furthest from the centre of a compound flower; as the white ones that surround the yellow ones in the *Common Daisy*,

or the florets in the outer part of a rundle. Pl. 4. f. 24. (a. a. a. a.)

CLAMMY (viscosus) adhesive like bird-lime; as are the leaves of the *Alder*; or the stalks of *Fraxinella*; and *Gum Cistus*.

CLASS (classis) see the introduction.

CLAW, (unguis) blossoms that are composed of several petals, have frequently those petals so formed as to admit of two distinct names; the claw and the limb. The claw is the lower part, or that next to the base: thus if you take a *Pink*, a *Campion*, or a *Wall-flower*, and draw out one of the petals, the lower and the slender part by which it was connected, and which was included within the cup, is the part which is called the *Claw*. Pl. 4. f. 11. (a. a.)

CLIMBING (scandens) a term applied to plants that take the advantage of twining round some other body to support and raise themselves; as the *Ivy* and *Honey-suckle*.

CLOATHING (pubes) every species of hairiness on the surface of plants. See *DOWN*; *HAIR*; *WOOL*; *BRISTLES*.

CLOSE (conglomeratus) when a branching fruit-stalk bears its flowers closely compacted together, but without regularity.

CLOVEN (hissus) divided half way down, as are the summits of *Ground Ivy* and *Jacob's Ladder*; the petals of *Campion*; and the leaves of wormwood.

..... TIPS; see pl. 1. f. 3. (a. a. a.)

CLUB-

CLUB-SHAPED (*clavatus*) thin at the base and thicker upwards, as is the fruit-stalk of the *Cuckoopint*, and of the *African Marigold*.

CLUSTER (*thyrsus*) a collection of flowers somewhat in an egg-shaped form, as those of the *Lilac* and *Butterbur*.

COLOURED (*coloratus*) when a leaf or cup is any other colour than green; as the floral-leaves of *Golden Saxifrage*.

COMB (*coma*) a collection of floral-leaves, terminating the flowering stem, as in *Sage* and *Crown Imperial*; it is remarkable also in the *Pine Apple*.

COMMON EMPALEMENT (*calix communis*) including several flowers: see the introduction to the 19th class. We have a well-known instance in the *Dandelion*, and in all the *Thistles*. Pl. 4. f. 20.

..... **RECEPTACLE** (*receptaculum commune*) a seat for several flowers or florets included within one common empalement; as is the case with most of the plants in the 19th class. The *Dandelion* is an example. Pl. 4. f. 23. (*a.*)

COMPACT (*coarctatus*) growing close and as it were pressed together.

COMPOUND FLOWERS; (*compositi flores*) consist of many florets upon one receptacle or seat, and included within one common empalement; as most of those in the 19th class; a *Thistle* is a familiar example. Pl. 4. f. 19. 24. 25. — Sometimes, but with less propriety, the flowers that grow in rundles are called compound, as those in the second order of the 5th class;

of which the *Carrot* is a well-known instance.

..... **RUNDLE**; (*umbella composita*) when each rundie is divided into other little rundles or rundlets. Pl. 6. f. 9.

..... **LEAF**; when each leaf-stalk supports more than one leaf; or when one leaf is inserted into another, as in *Wood Horsetail*. Pl. 7. f. 47. 49. Pl. 8. f. 52. 53. 54. 55. 56. Pl. 9: f. 3. (*a.*) See also *doubly compound*; *triply compound*.

..... **BERRY**; when one large berry is composed of several small ones, as for instance, the *Raspberry*.

COMPRESSED (*compressus*) a term applied to a cylindrical substance more or less flattened. Thus suppose a straw to be the cylindrical substance; if this be pressed between the thumb and finger so as to flatten it, we should then say it was compressed. The cup of the *Gilliflower* or the *Wallflower* is compressed, and so is the blossom of the *Rattle*, and the pod of the *Ladysmock*.

..... **LEAF**; one that is thicker than it is broad.

CONCAVE (*concavus*) hollowed out like a bowl; as are the petals of the *Cherry* or the *Hawthorn*; and the leaves of *Broad-leaved Plantain*.

CONE (*strobilus*) a species of seed-vessel exemplified in the *Pine* and *Fir*. Pl. 5. f. 18.

CONGREGATED (*glomeratus*) when several little spikes or panicles are crowded together somewhat in a globular form. Examples are not uncommon among the Grasses; *Rough Cocksfoot* is one.

CONICAL

CONICAL (conicus) the shape of the *Alpine Strawberry*; nearly resembling the form of a sugar loaf.

CONNECTED (adnatus) *Leaves* or *Props*; those that have their upper surface at the base growing to the stem or branch.

CONTIGUOUS (adpressus) when a leaf, branch, or seed-vessel rises up so perpendicularly as to stand almost parallel and close to the stem. The pods of the *Common Mustard* furnish an example; and the leaves of the *Cress Mithridate*. Pl. 9. f. 6.

CONVEX (convexus) opposed to concave. Rising like the surface of a globe. The receptacle of the garden *Tansy* is convex.

CREeping (repens) *STEM*; creeping along the ground, and sending forth little roots; the *Violet* and *Ivy* are instances. Pl. 10. f. 8.

..... *ROOT*; as in the *Spearmint*. Pl. 10. f. 7.

CRESCENT-SHAPED (lunularis) (lunatus) shaped like a new moon; as are the tips of the *Strawberry*.

..... *LEAF*. Pl. 7. f. 11.

CRESTED (cristatus) flowers, furnished with a tuft or crest, as is the common *Milkwort*.

CROOKED (cernuus) *FRUIT-STALK*; so much bent that the flower faces the earth, and so stiff that it cannot be straightened without breaking: as in *Crown Imperial*.

CROSS-PAIRS (decussatus) when leaves grow in pairs, and each pair points in a different direction to the pair next above or below it. Thus, if one pair point East and West, the pair next below it

point North and South; the third pair crosses the second, the fourth the third, and so on. Pl. 9. f. 1.

CROSS-SHAPED (cruciatuus) (cruciformis) *FLOWERS*; are those which have four petals disposed in the form of a cross. The *Gilliflower* *Candytuft*, and *Cabbage*, are familiar instances. Pl. 4. f. 11. f. 12.

CROWNED (coronatus) *SEED*; is a seed to which the cup of the flower adheres, as in *Teasel*; or it is a seed furnished with a feather, as in *Dandelion*. Pl. 4. f. 22. f. 27.

..... *BERRY*; is a berry with the flower-cup adhering; as in the *Honeysuckle*.

CUP (perianthium) a species of empalement contiguous to the other parts of the flower. It either includes one flower, as in the *Convolvulus* and *Gilliflower*; or several florets, as in the *Sunflower* and *Daisy*. Pl. 3. f. 1. f. 10. f. 5. (a.) Pl. 4. f. 7. (c.) f. 12. (b.) f. 13. 14. 18. (a. a. a.)

..... *DOUBLE* (calyculatus.)

CURLED (crispus) *LEAVES*; as in *Endive* and *Curled Mint*. Pl. 8. f. 67.

CURVED (reclinatus) bent back, so that the extremity is lower than the base. Pl. 9. f. 5. (e. e.)

CUT-ROUND (circumscissus) when a seed-vessel does not open longways, as is generally the case, but in a circle surrounding it, like a snuff-box, as in *Pimpernel*. Pl. 5. f. 9.

CYLINDRICAL (teres) the form of the trunk of a tree. Pl. 8. f. 68.

..... *STRAW*; *Bullrush*.

..... *STALK*; *Great Plantain*.

STEM;

..... STEM: *Asparagus*,
..... LEAF; *Wild Garlic*;
Onion.

..... CUP; *Pink*.

..... CATKIN; *Reed-mace*.

DECIDUOUS (*deciduus*)
LEAVES; those that fall off at the
approach of winter.

..... CUP; falling off
before the blossom; as does that
of the *Thorn-apple*, the *Cabbage*,
the *Lady-smock*, and the *Poppy*.

..... SEED-VESSEL; fall-
ing off before it opens, as in the
Sea Rocket and *Wood*.

DECLINING (*declinatus*) bent
like a bow, with the arch down-
wards; as the seed-vessel of the
Water Cresset, the threads of the
Bugloss. See the lower chive in
pl. 1. f. 11. f. 12.

DENTED (*retusus*) a blunt leaf,
&c. with a dent or blunt notch at
the end; as in the *Broad-leaved Sea*
Heath.

DEPRESSED (*depressus*) when
the surface of a leaf, &c. is in a
small degree concave — pressed
down — flattened.

DIAMOND-SHAPED (*rhombus*)
applied to leaves that resemble
the figure of a diamond as
painted on cards.

DIMPLED (*umbilicatus*) having
a little hollow dot; as in the fruit
of the *Barberry*.

DISTANT (*distans*) far asun-
der; as the chives of the *Mint*; or
the whorls of the flowers in the
Corn Mint.

DISTENDED (*ventricosus*) as
the cup of the *Rose*, or the under
part of the blossom of the *Foxglove*.
Pl. 4. f. 4.

DISTINCT (*dioecia*) a term ap-
plied to chives and pointals when
they are not only found in dif-
ferent flowers, but these flowers
must likewise grow upon different
plants. See the 22d class. Thus
in the *Yew Tree*, if you find it in
flower, and one of the flowers is
furnished with chives; all the
flowers upon that particular tree
have only chives and no pointals;
but if you find a flower with a
pointal and no chives, then all the
flowers upon that tree will be found
equally destitute of chives. Pl. 1.
f. 22.

DIVERGING (*divergens*)
spreading wide from the stem, al-
most horizontally. This term is
opposed to *Compast*.

DIVISIONS. See the next
article.

DIVIDED (*partitus*) applied to
a leaf, a cup, or a petal; it signi-
fies that it is parted more than half
way down; as the petals of *Chick-
weed*; the cup of *Comfrey*, or *Bor-
rage*. Pl. 7. f. 28.

DOTTED (*punctatus*) marked
with little hollow dots; as are the
leaves of the *Sea Chamomile*; and
the receptacle of some of the com-
pound flowers. Pl. 4. f. 23.

DOUBLED *together* (*conduplicatus*)
as are the leaves of the
Black Cherry before they unfold.

DOUBLE (*didymus*) applied to
the tips of several flowers, when
upon one thread there are two tips
united, like a double nut; as in
the *Ranunculus*, *Anemone*, *Celandine*
Plumb, *Cherry*. Pl. 3. f. 6. (*h.*)

..... CUP; (*duplex*) when
the cup of a flower hath another
outer

outer cup surrounding it, as in the *Marsh-mallow*, and *Hollyhock*.

..... SEED-BUD; when two seed-buds are united together, as in *Goose-grass* or *Cleavers*.

DOUBLY-COMPOUND (decompositus) LEAVES, having the primary leaf-stalk divided, so that each division forms a compound leaf. They are of three different kinds:

1. **TWINFORK**; (bigeminus) when a forked leaf-stalk bears several leaflets at the end of each division or fork. Pl. 10. f. 4.
2. **DOUBLY THREEFOLD**; (bi-ternatus) when a leaf-stalk with three divisions bears three leaflets upon the end of each division. Pl. 8. f. 57.
3. **DOUBLY-WINGED**; (duplicatopinnatus) (bi-pinnatus) a leaf-stalk having lateral ribs, and each of these ribs being a winged leaf; example *Tansy*, *Yarrow*. Pl. 8. f. 56.

For leaves more than doubly compound, see **TRIPLY COMPOUND**.

DOWNY (tomentosus) covered with a whitish down: as the leaves of the *Marsh-mallow* and *Great Mullein*.

..... SEEDS; (plumosus) the feather of seeds is sometimes downy, as in *Goats-beard*. Pl. 4. f. 22. (l.) Pl. 6. f. 2. (b.)

DUST (farina. pollen) a fine powder contained in the tips of flowers: it is too minute for the naked eye to examine, but by the assistance of a microscope, it appears very different in different plants: Thus in the *Bloody Geranium* it is a perforated globule; in the *Marsh-mallow* like the wheel of

a watch; in the *Pansy* it is triangular; in the *Narcissus* kidney-shaped; and in *Comfrey* the globules are double. Pl. 3. f. 5. (f.) a tip discharging its dust; f. 8. a particle of dust greatly magnified.

DUSTED (pulveratus) some plants appear as if covered with a kind of dust or powder. e. g. the *English Mercury*.

EAR-SHAPED (auriculatus) somewhat resembling a human ear.

ELLIPTICAL. The same as oval.

EGG-SHAPED (ovatus) signifies a shape resembling the solid substance of an egg as the seed-bud of *Jacob's Ladder* and the seeds of *Fennel*; or it implies only the form of an egg if divided longways, as in the leaves of the *Beech-tree* or *Peppermint*. Pl. 7. f. 3.

EMBRACING (amplexicaulis) the **STEM**; when the base of a leaf half surrounds the stem, as in *Solomon's Seal*, *Poppy*, and *Borragé*. Pl. 9. f. 4. (f.)

EMPALEMENT (calyx) is a continuation of the outer bark of a plant constituting a part of the flower. It is either a

..... **CUP**; (perianthium) as in *Primrose*; pl. 3. f. 10.

..... a **FENCE**; (involucrum) as in *Carrot*; pl. 6. f. 9. (c. c.)

..... a **CATKIN**; (amentum) as in *Hazel*; pl. 6. f. 12.

..... a **VEIL**; (calyptra) as in several *Mosses*; pl. 1. f. D. (a.)

..... a **HUSK**; (gluma) as in *Oats*; pl. 2. f. 21. (a. a.) f. 1 (a. a.)

..... a **SHEATH**; (spatha) as in *Narcissus*; pl. 3. f. 9. (a. a.) or a **RUFFLE**.

..... a RUFFLE; (volva) as in several Fungusses. Pl. 1. f. H. (c.) See those terms.

ENTIRE (integer) LEAF or PETAL, this term is opposed to cloven, gashed, indented, &c. but it does not signify that it is not serrated or scolloped. When a leaf is said to be very entire (integerrimus) we understand that it is not even scolloped or serrated. The leaves of a Nettle are *entire*, but those of a Lilac are *very entire*. Pl. 7. f. 31. 35. entire leaves. f. 39. 40. very entire leaves.

EQUAL (æqualis) sometimes signifies regular; all alike; as the blossoms of *Angelica*. The florets forming the compound flowers in the first order of the 18th class, are said to be equal; that is, all are alike in being equally furnished both with chives and pointals.

ESSENTIAL CHARACTER (character essentialis) is a single circumstance serving to distinguish a species or a genus from every other species or genus. Thus the genus *Crowfoot* (*Ranunculus*) is distinguished from other genera by the honeycup at the base of each petal; and the *Colewort* is known from all the other genera in the same natural order, by the four longer threads being forked at the top.

EVEN (lævis) SURFACE, level, regular; in opposition to scored, furrowed, or other inequalities, occasioned by deficiency of substance.

EXCRESCENCE (apophysis) a substance growing from the seat of the flower in some of the Mosses.

EXPANDING (patens) standing in a direction between upright and horizontal; as the petals of

the *Strawberry*, the branches of most plants, and the leaves of the *Brooklime Speedwell*. Pl. 9. f. 5. (c. c.)

EYE (hilum) the external scar upon a seed by which it was fixed to the seed-vessel; it is very remarkable in a *Bean*. Pl. 6. f. 3. (e.)

FEATHER (pappus) the downy or hairy substance affixed to the seeds of some plants, enabling the wind to scatter them abroad. The feather of the *Goats-beard* is downy: that of the *Sowthistle* hairy. Pl. 4. f. 22. (l.) pl. 6. f. 2. (a. b.)

FENCE (involucrum) the em-palement of a rundle: it is placed at some distance from the flowers. It is either *General* or *Partial*. The *Carrot* furnishes instances of both. The *General Fence* is placed under the rundle; the *Partial* under the rundlets. Pl. 6. f. 9. (c. c.) (d. d. d. d.)

FENCE *partial* (involucellum) the fence surrounding the base of a rundlet. Pl. 6. f. 9. (d. d. d. d.)

FERTILE FLOWERS (fertiles vel feminei flores) those that produce seed capable of vegetation; as is very generally the case in the flowers which have both chives and pointals. Flowers that have only chives never can produce seeds; and flowers that have only pointals *must* be barren, if they are so situated as to be out of the dust from the tips of the barren flowers: In some instances they will indeed produce seeds to all appearance perfect, but these seeds will never vegetate.

FIBROUS (fibrosus) ROOTS; composed of small threads or fibres. Pl. 10. f. 7.

FIDDLE-

FIDDLE-SHAPED (*panduriformis*) the shape of a leaf as in one species of Dock, supposed to resemble a violin.

FINGERED (*digitatus*) a species of compound LEAVES, resembling the expanded fingers of a man's hand. e. g. those of the *Wild black Hellebore*, *Lupine*, and *Horse Chestnut*. Pl. 7. f. 48.

..... they may be IN PAIRS (*binatus*) with two terminating leaflets. Pl. 7. f. 50.

..... IN THREES (*ternatus*) with three terminating leaflets. Pl. 7. f. 51.

..... IN FIVES (*quinatus*) with five terminating leaflets.

FIRM (*compactus*) applied to the texture of a leaf.

FLESHY *Seed-vessel* (*Pomum*) covering a Capsule which contains the Seeds, as in the Pear or Apple. Pl. 5. f. 20.

..... LEAF, or ROOT, (*carneus*) as the leaves of *Sedum dasyphyllum*.

..... more solid than pulpy; as the fruit of the *Apple*; the root of the *Turnep*; and the leaf of the *Round-leaved Stonecrop*.

FLOATING (*natans*) applied to aquatic plants, whose leaves or flowers float upon the surface of the water: e. g. *Waterlily*.

FLORAL-LEAVES (*bractæ*) differ in shape or colour from the other leaves of the plant; they are generally placed on the fruit-stalk, and often so near the flower as in some instances to be easily mistaken for the cup; but the cup dries or withers when the

fruit is ripe, whereas the floral leaves endure as long as the other leaves of the plant. Examples of floral leaves may be seen in the *Pansie*, the *Limetree*, the *Hellebore*, the *Passion-flower*, the *Sage*, the *wild Marjoram*; and many others. Pl. 9. f. 8. (*a. a.*)

FLORLET (*flosculus*) a little flower, one of the small flowers composing a compound or incorporated flower. See the introduction to the 19th class. They are **TUBULAR**; that is, formed of a tube cloven into five parts at the border, as in *Tansy*; or **NARROW**, when the blossom is long and strap-shaped, as in *Dandelion*. In the *Daisy* and *Sunflower* the florets in the centre are **TUBULAR**, and those in the circumference **NARROW**, or **RADIATE**. Pl. 4. f. 21. f. 24. f. 26. In the second order of the fifth class the florets composing the rundles are composed of five petals. When the petals are all of the same size and shape the florets are said to be **EQUAL**; as in *Angelica* and *Celery*; but when the outer petals are larger than the others, the florets are said to be **RADIATE**; as in *Shepherd's Needle* and *Carrot*.

FLOWER (*flos*) a temporary part of a plant appropriated to the production of seeds. It is composed of seven parts; the **EMPALEMENT**; the **BLOSSOM**; the **CHIVES**; the **POINTALS**; the **SEED-VESSEL**; the **SEEDS**; and the **RECEPTACLE**. To these perhaps we may add an eighth, *viz.* the **HONEY-CUP**. It is not necessary that all these parts should be present to constitute a flower. **IMPERFECT**

Flowers

flowers are deficient in one or more of the parts. The *Hyacinth* and *Tulip* have no cup. The *Mistletoe*, *Gale*, *Hop*, *Yew*, *Dog's Mercury*, *Nettle*; and the flowers of the plants bearing catkins, have no blossoms. The *Ground Ivy*, the *white* and *red Deadnettle*, and all the plants in the first order of the fourteenth class have no seed-vessels.

FORKED (*furcatus*) (*dichotomus*) dividing into forks, as the branches of most of the *Spurges*; the fruit-stalks of the *Common Calamint*, and the *Pink*; the *Shaft* of the *Currant*. Pl. 10. f. 4.

FOUR-CORNERED (*tetragonus*) as the stem of the *Deadnettle*.

FRINGED (*ciliatus*) as the blossom of the *Buckbean* and the *Garden Nasturtium*; or the leaves of the *Cross-leaved Heath*.

FRUIT (*fructus*) a part of a flower, consisting of the **SEED-VESSEL**, the **SEED** and the **RECEPTACLE**.

FRUIT-STALK (*pedunculus*) a part of a stem or branch, bearing flowers but not leaves. Pl. 9. f. 5. (*m.*) f. 8. (*c.*) pl. 6. f. 7. (*a. a. a. a. a. a.*)

FUNNEL-SHAPED (*infundibuliformis*) a blossom of one petal; the lower part of which is tubular, the upper part conical, as in *Hound's tongue*, *Bugloss*, *Coreopsis*. Pl. 4. f. 7.

..... **CUP**; as in *Thrift*.

FURROWED (*fulcatus*) marked with deep lines running lengthways.

GAPING (*ringens*) (*personatus*) **BLOSSOMS**; so called from the resemblance to a gaping mouth.

Toadflax and *Snapdragon* are instances. Pl. 4. f. 2. 9. 10.

GASHED (*lobatus*) divided nearly half way down, into lobes that are convex at the edges and distant from each other; as the leaves of *Ladies Mantle* and *Water-elder*. Pl. 7. f. 19.

GENERAL FENCE (*involucrum*) a species, of empalement surrounding a general rundle, as in a *Carrot*, *Angelica*, or *Lovage*. It consists of one, or more leaves. Pl. 6. f. 9. (*c. c.*)

GENUS } See the introduction.
GENERA }

GENERIC CHARACTER consists of an accurate description of the different parts composing a flower; and all those plants whose flowers agree with this description, are species of the same genus. (See the introduction.)

GILLS (*lamellæ*) the thin plates on the under side of the Hats of the *Fungusses*, remarkable in *Mushrooms*.

GLANDS (*glandulæ*) secretory vessels, differently situated in different plants. In the *Willow* they are placed at the margins of the leaves; in the *Bird's Cherry* and *Almond Tree* at the base of the leaves; in *Butterwort* and the *Sundew* upon the leaves, and in the *Plumb* on the inner side of the cups. Pl. 10. f. 6. (*c. c.*) pl. 11. f. 1. (*a. a. a. a.*)

GLASS-SHAPED (*cyathiformis*) tubular, but dilated towards the top like a drinking glass; as the cup of *Jacob's-ladder*; the summits of the *Field Southern-wood*, the honey-cup of the *Nettle*.

GLOBULAR

GLOBULAR (*globosus*) like a round ball; as the cup of the *Burdock*; the seed-vessel of the *Flax*; the seed of the *Pea*; the capsule of the *Poppy*. Pl. 5.

GLOSSY (*nitidus*) smooth and shining; as the seedbud of the *Sweet-briar*; the leaves of the *Holly*, *Ivy*, and *Box*.

GNAWED (*erosus*) as when a leaf is indented, and appears as if it had been gnawed or bitten at the edges. Pl. 7. f. 21.

GRANULATIONS (*acinis*) the small berries which join together and compose a large one, as in the *Mulberry*, *Blackberry*, or *Raspberry*.

HAIR-LIKE (*capillaris*) slender, undivided, and cylindrical; as the threads in *Plantain*, *Raygrass*, *Reed*, and most of the Grasses.

HAIRS (*pili*) are supposed to be secretory ducts.

HALBERD-SHAPED (*hastatus*) as the floral-leaves of the *Pansie*; the leaves of *Sheeps Sorrel* and *Duckwarpint*. Pl. 7. f. 15.

HAND-SHAPED (*palmatius*) resembling a human hand with the fingers expanded; as the leaves of *White Briony*; *Passionflower*; and the roots of *Spotted Orchis*. Pl. 7. f. 22.

HAT (*pileus*) the upper broad expanding part of Fungusses. In Mushrooms the hat is often called the flap. Pl. 1. f. H. (c.)

HEADED (*capitulus*) **STALK**; when a stalk supports one compact knob or head of flowers upon its extremity, as in *Thrift*.

HEADS (*capitatus*) of **FLOWERS**; when flowers grow together in compact knobs; as in *Peppermint*, *Watermint*, *Common Thyme*.

HEART (*corculum*) that part of a seed which is the future plant in miniature. Pl. 6. f. 3. (b.)

HEART-SHAPED (*cordatus*) a term used to express the form of a petal, a leaf, &c. the leaves of *Waterlily*, *Deadnettle*, *Burdock*, and *Violet*, are heart-shaped. Pl. 7. f. 10.

HELMET (*galea*) a term to express the upper part of a gaping blossom, which bears some resemblance to a helmet. See the introduction to the 20th class.

HEMISPHERICAL (*hemisphericus*) in the shape of half a globe; as the cup of the *Tansy*.

HERBACEOUS (*herbaceus*) **STEM**; one that is succulent and tender, in opposition to one that is woody: it perishes annually down to the root. The *Pea* and the *Nettle* are instances. The stem of the *Gilliflower* is somewhat woody.

HONEYCUP (*nectarium*) a part of a flower designed to secrete and contain honey. In flowers that have only one petal, the tube of the blossom contains the honey; or else it is contained in a sort of horn-shaped appendage, as in the *Butterwort*. In the *Violet*, the *Larkspur*, the *Columbine*, and the *Fumitory*, it is a sort of spur, or horn. In the *Ranunculus*, the *Lily*, and the *Crown Imperial*, it is a hollow cavity in the substance of the petals. In the *Daffodil* and *Hellebore* it is tubular. In the *Fraxinella* and *Campanula* it is fixed to the chives; in the *Gilliflower*, and the *Turnep*, it is placed

placed on the seed-bud in form of a gland. Its structure is no where more singular or beautiful than in the *Grass of Parnassus*. Pl. 5. f. 1. (a.) f. 2. (a. a. a. a. a.) f. 3. (a. a) f. 4. (a.)

HOODED (cucullatus) a term applied to leaves that are rolled up, as the grocers roll paper to put sugar or spices in, like a cone; as the leaves of *Wall Pennywort*.

HORIZONTAL (horizontalis) a leaf or branch that grows from the stem pointing to the horizon, and parallel to the surface of the earth. Pl. 9. f. 5. (d. d.)

HORN-SHAPED (cornutus) like the honeycup of the *Larkspur*. Pl. 5. f. 4. (a.)

HUNCHED (gibbus) swelled out, as the under part of the blossom of the *Foxglove*, the *Blossom* of the *Honeysuckle*; the cup of the *Turnep* and the *Wallflower*. Pl. 4. f. 12. (b.)

HUSK (gluma) the empalements and the blossoms of grasses are called the husks; they are thin, dry, and semi-transparent, like chaff; a husk consists of one or more leaves, called *Valves*, and, when contiguous to the other parts of the flower, inclosing the chives and pointals, answers the purpose of a *Blossom*: but, when placed on the outer side, and inclosing the inner valves, as well as the chives and pointals, it is called the empalement. This kind of empalement frequently contains several florets. See the plate of *Grasses*.

JAGGED (laciniatus) LEAVES; those that are variously divided into lobes, and these lobes again

divided in an irregular manner. The *Pansie* is an instance. Pl. 7. f. 24.

IMPERFECT (incompletus) FLOWERS; those that want either the cup or the blossom. The *Tulip* wants a cup: and the *Nettle* is without a blossom.

INCORPORATED (aggregatus) when a number of little flowers or florets, are so disposed as to form one compound flower; all of them either inclosed within one common empalement, or situated upon one common receptacle; so that none of them can be taken away without destroying the uniformity of the whole. Thus the flowers of *Thrift*, *Parsley*, *Teasel*, *Scabious*, *Daisy* are incorporated; several small flowers, or florets, combining to form one large flower.

INDENTED (sinuatus) LEAF the edges of an indented leaf are hollowed, or deeply scolloped, the lobes standing asunder as if part of the leaf had been cut out. The leaf of the *Turnep* is a familiar example. See also pl. 7. f. 25.

INDIVIDUAL (proprius) Blossom; the bloss. belonging to a single floret in a compound flower. Thus in a *Carrot*, each floret is composed of five petals, which constitute the blossom of that individual floret. The individual blossoms in *Tansy* are all tubular; in *Dandelion* they are all long and strap-shaped. In the *Sunflower* they are tubular in the centre and strap-shaped in the circumference. Pl. 4. f. 21. f. 26.

INFLEXIBLE (rigidus) stiff not easily bending: opposed to LIMBER.

INTERRUPTED

INTERRUPTED (*interruptus*) broken in its regular form; as the spike of *Wood Betony*; the leaves of some species of the *Ladies finger*. A spike may be interrupted by the intervention of leaves, or smaller sets of flowers: a winged leaf may be interrupted by the intervention of smaller pairs of little leaves. Pl. 8. f. 55.

INVERSELY-HEART-SHAPED (*obcordatus*) with the point of the heart next to the stem; as the seed-vessel of the *Shepherd's Purse*; the petals of *Geranium* or *Marshmallow*; and the leaves of some of the *Trefoils*. Pl. 3. f. 69.

JOINTED (*articulatus*) **STEM**; a wheat-straw is an instance familiar to every one. Pl. 10. f. 3.

..... **LEAVES**; as in the *Indian Fig*. Pl. 9. f. 3. (*a.*)

IRREGULAR (*irregularis*) a term term applied to compound flowers wherein the florets are not uniform; as in the *Carrot* and *Coriander*.

..... **BLOSSOM**. See **REGULAR**.

KEEL (*carina*) a name given to the lowermost petal in a butterfly-shaped blossom, from its supposed resemblance to the keel of a ship: see the introduction to the 17th class. See also Pl. 4. f. 17. and f. 13. (*d.*)

KEELED (*carinatus*) bent like the keel of a ship or boat: as the shaft of the *Pea*; the empalement of *Canary Grass*. Pl. 2. f. 10. (*a. a.*)

KIDNEY-SHAPED (*reniformis*) as the seed of the *French Bean*, the tips of the *Mallow*: the leaves of

Ground Ivy; *Golden Saxifrage*, and *Meadowabout*. Pl. 7. f. 9.

KNEE-JOINTED (*geniculatus*) when a straw or stem is a little bent at the joints. Pl. 2. f. 21, the *Awns*.

KNOB (*capitulum*) See **HEAD**.

LACTESCENT (*lactescens*) abounding with a milky juice.

LAMINATED (*equitans*) when the flat surfaces of leaves lie close one upon another.

LATERAL (*lateralis*) **BRANCHES**, growing from the sides of the stem; opposed to *terminating*.

..... **FLOWERS**; those that grow from the sides of the stems or stalks; thus the spikes of flowers in the *Common Speedwell* grow on lateral fruitstalks; or on fruitstalks proceeding from the sides of the stem.

LEAF (*folium*) the green leaves are the lungs of plants, and the organs of motion.

LEAF-STALK (*petiolus*) the footstalk of a leaf. It supports the leaves but not the flowers. In the *Great Periwinkle* the leaf-stalks are very long. Pl. 9. f. 4. (*a. b. c.*)

LEAFY (*foliaceus*) furnished with leaves.

..... **CUP**; (*auctus*) when the base of a cup is surrounded by a series of leaves, different from those which form the cup.

..... **SEED**; a seed that is surrounded by a thin leafy edge, as in *Cow's Madnep*.

LEATHER-LIKE (*coriaceus*) tough and pliable like leather; e. g. the cup of the *Corn Cockle*, and most of the plants in the third division of the 24th class.

LEVEL (*fastigiatus*) when several branches or fruitstalks grow to equal heights, so as to form a flat surface at the top; as in the flowers of the *Sweet William*.

LID (*operculum*) a cover to the tips of several of the Mosses; as in the *Bogmoss*. Pl. 1. f. D. (b.)

LIMB (*lamina*) the upper part of a petal, in blossoms composed of more than one regular petal. Thus in the *Wall-flower*, the upper flat broad part of the petals is called the limb: the lower slender part included within the cup is called the claw. Pl. 4. f. 11. (b. b. b. b.) f. 12. (a. a. a. a.)

LIMBER (*flaccidus*) **FRUITSTALK**, bending with the weight of its own flowers.

LINE (*linea*) the breadth of the white part at the root of the finger nail; about the tenth of an inch.

LIP (*labium*) the upper or under division of a gaping blossom. The *Deadnettle* and the greater part of the plants in the 14th class furnish examples. See the introduction to that class. See also pl. 4. f. 8. f. 9. and f. 10.

LITTLE FRUIT-STALK (*pedicellus*) the little foot-stalk that supports an individual flower, when there are several flowers upon one common fruit-stalk. Pl. 6. f. 7. (a. a. a. a. a. a.)

LOBES (*lobum*) the divisions of a *gashed* leaf; see *GASHED*. The lobes are rounded at the edges, and stand distant from each other. The leaves of the *Hop*, *Anemone*, *Hepatica*, and *Sycamore* furnish examples. Pl. 7. f. 17. f. 19.

LONG (*longus*) a cup is said to be long, when it is equal in length to the tube of the blossom.

LOPPED (*truncatus*) appearing as if cut off with a pair of scissors: the leaves of the *Great Bindweed* are lopped at the base, the petals of the *Periwinkle* are lopped at the end. Pl. 8. f. 63.

LYRE-SHAPED (*lyratus*) as the leaves of *Herb-Bennet*. Pl. 8. f. 62.

MATTED (*cæspitosus*) thickly interwoven together, as the fibres in turf-bogs.

MEMBRANACEOUS (*membranaceus*) thin, skinny, and tough.

..... **STEM**; when the edges of the stem are bordered with a thin leafy substance, as in *Water Figwort* and *Broad Leaved Pease Everlasting*.

MOUTH (*faux*) the upper part of the tube, in blossoms consisting of a single petal; as *Borrage*, *Houndstongue*, *Deadnettle*. Pl. 4. f. 9. (d. d.)

NARROW (*ligulatus*) the florets in some species of compound flowers are tubular at the bottom, but flat and narrow like a strap or fillet at the top. In *Dandelion* the florets are all narrow: in the common *Daisie* the florets in the circumference only, are narrow. Pl. 4. f. 10. f. 21. f. 24.

NAKED (*nudus*) or **BARE**; destitute of leaves; as the stalk of the *Tulip* or *Coxslipe*.

..... **MOUTH**; when the mouth of the tube of a blossom is not closed by valves or hairs. The mouth of the blossom of *Borrage* is closed by five valves, or teeth: but

but that of *Gromwell* is open and naked.

..... RECEPTACLE; neither chaffy nor hairy; as that of the *Daisie*.

..... LEAVES. Leaves destitute of hairs.

NODDING (nutans) FLOWER; when the fruit-stalk is bent near the end, as in the *Chequered Daffodil*, *Narcissus* and *Jonquil*. Pl. 3. f. 9.

NOTCHED (emarginatus) AT THE END; as the petals of the *Small Campion* and *Dove's-foot Crane's-bill*; the little leaves of *Vetch*; the leaves of the common *Maple*. Pl. 7. f. 16. 36.

NOTCHED (runcinatus) LEAVES. The edges cut something like the teeth of a large timber saw. *Dandelion*, *Broad-leaved Watercress*, *Long-rooted Hawk's-eye*, and *Smooth Succory Hawk-weed*, are examples.

NUT (nux) a seed covered by a hard woody shell; e. g. the *Hazel Nut*. This woody shell is sometimes covered by a soft pulpy or fleshy substance as in a *Peach* or *Apricot*, and then it is called a stone. Pl. 5. f. 21. (b. b.)

OBLONG (oblongus) longer than broad, and rounded at the ends; as the leaves of the *Daisie*; the tips of the *Honeysuckle*. Pl. 7. f. 5.

OPEN (patulus) standing wide.

OPPOSITE (oppositus) growing on the opposite sides of the stem, but at the same height from the ground, as the leaves of the *Nettle*. In pl. 9. f. 5. all the leaves are opposite.

OVAL (ovalis) as the leaves of of box. Pl. 7. f. 4.

PAIRS (binatus; geminus) leaves, or fruit-stalks, sometimes grow in pairs. Pl. 7. f. 50.

PALATE (palatum) the inner part of the mouth of gaping blossoms. Pl. 4. f. 10. (c.)

PANICLE (panicula) an assemblage of flowers growing without any very regular order, upon fruit-stalks that are variously subdivided; e. g. *Oats*. Pl. 6. f. 6. It is said to be

..... SPREADING; when the partial fruit-stalks diverge and stand wide asunder as in the *Common* and *Reed Meadowgrasses*.

..... COMPACT; when they stand near together, as in the *Sheep's Fescue*, and *Purple Hairgrasses*.

PANICLED (paniculatus) BUNCH an assemblage of flowers partaking the properties of a panicle and a bunch. See those terms. *Golden Rod* may serve as an example.

..... SPIKE; an assemblage of flowers partaking the properties of a panicle and a spike; as the *Wall Fescue* and the *Manured Canary Grass*, in which the collections of florets resemble a spike in their general appearance, but the florets are furnished with fruit-stalks, shorter than themselves.

PARASITICAL (parasiticus) VEGETABLES; not taking root in the earth, but growing upon other vegetables. Thus *Mistletoe* is found to grow upon the *Apple Tree*, the *Pear*, the *Lime*, the *Elm*, the *Poplar*, the *Hawthorn* and the *Buckthorn*, but never upon the ground.

PARTIAL (partialis) belonging to a part, not to the whole.

..... FENCE. Pl. 6. f. 9. (d. d. d. d.)

PARTITION (dissepimentum) the substance dividing seed-vessels

sels into different cells. Thus the Seed-vessel of *Jacob's Ladder* is divided into three cells; and if you cut a Lemon across, you will plainly see the partitions that divide it into nine cells. See also pl. 5. f. 12. (*b. b.*) f. 14. (*b. b. b. b.*)

PENCIL-SHAPED (*penciliformis*) like a camel-hair pencil; as the summits of *Millet*, or the appendages to the blossoms of the *Meadow Milkwort*. Pl. 2. f. 11. (*c. c.*)

PENDANT (*pendulus*) hanging down; as the bunches of the *Red Currant*; the cones of the *Scotch Fir*; the flowers of the *Columbine*.

PERENNIAL (*perennis*) continuing for several years.

PERFECT (*completus*) FLOWER, having both a cup and a blossom.

PERFORATED (*perfoliatus*) LEAVES; when the stem seems to go through the leaves; as in the *Round-leaved Thoroughwax*. Pl. 9. f. 4. (*g.*)

PERMANENT (*persistens*) CUP, remaining till the fruit is ripe; as in *Borage*; *Currant*; *Pink*; and *Deadnettle*.

PETALS (*petalum*) the leaves which constitute the blossom are called PETALS, to distinguish them from the other leaves of the plant. See Pl. 3. f. 2. (*a. a. a. a. a. a.*) Pl. 4. f. 12. (*a. a. a. a.*)

PILLAR (*stipes*) the cylindrical substance that supports the hat of a Fungus, e. g. the *Common Mushroom*: also the little shaft upon which the feather of seeds is placed, as in *Dandelion*. Pl. 1. f. H. (*b.*) Pl. 4. f. 22. (*i.*) Pl. 6. f. 2. (*d.*)

PIMPLED (*papillofus*) beset with dots or pimples.

PITH (*inanis*) a soft spongy substance filling up the cavity in the stems of some plants; as in the *Rush* and the *Elder*.

PLAITED (*plicatus*) folded in plaits; as the blossom of *Convolvervulus*; the cup of *Thrift*, and the leaves of *Ladies-mantle*. Pl. 7. f. 37.

POD (*siliqua*) a seed-vessel of two valves, within which the seeds are fixed alternately to each seam. When long, it is called a pod, as in *Gilliflower*; when broad and short, it is called a pouch, as in *Honesty* and *Shepherd's Purse*. Pl. 5. f. 10. f. 11. f. 12. f. 13.

POINTAL (*pistillum*) a part of a flower, composed of the SEED-BUD, the SHAFT, and the SUMMIT. Look into the blossom of a *Plumb*, or *Cherry*, and in the centre you will see the pointal surrounded by chives. In the blossom of the *Apple*, or *Pear*, you will perceive five pointals in the centre. In the *Deadnettle* you will find the pointal covered by the upper lip, and forked at the top. In the centre of the blossom of the *White Lily*, the pointal stands surrounded by six chives. In this flower the SEED-BUD, which is the lower part of the pointal, is long, cylindrical, and marked with six furrows; next above this part is the SHAFT, which is long and cylindrical; and, at the top of the pointal is the SUMMIT, which is thick and triangular. See pl. 3. f. 2. (*d. e. f.*) f. 7. (*i. k. l.*) f. 5. (*c. d. e.*)

POINTING, FROM TWO OPPOSITE LINES. See *two-rowed*.

..... ONE WAY (*secundus*) as the flowers of the *Foxglove*, the *Cock's-foot*,

beak's-foot, and the *Sheep's Fescue* *grass*. Pl. 2. f. 13. (d.)

PORES (pori) little holes. At the inner side of the base of the petals, in all the species of *Ranunculus* or *Crow-foot*, are little pores filled with honey. See also pl. 3.

3. (k.)

POUCH (filicula) pl. 5. f. 10. 11. See *Pod*.

PRICKLES (aculei) sharp-pointed weapons of defence, formed from the bark, and not from the woody part of a plant. The prickles of the *Rose* are a familiar example. Pl. 10. 2.

PRISM-SHAPED (prismaticus) differing from cylindrical in the circumference being angular, as the cup of the *Pulmonaria*.

PROLIFEROUS (proliferi flores) Blossoms; when one grows out of another, as is not uncommon in the *Polyanthus*.

..... **SHOOTS**; when one shoot springs out of another, as in the *Proliferous Feather-moss*.

PROMINENT (prominens) the partition of a seed-vessel is said to be prominent when it projects beyond the valves, as in *Cabbage*, and many other plants of the fifteenth class.

PROPS (stipulæ) small leaves or scales situated on each side the base of a leaf-stalk or fruit-stalk, for the purpose of supporting them at their first appearance. They are sufficiently evident in the *Garden Pea*. Pl. 10. f. 6. (b. b.)

PROTUBERANCES (torosus) in seed-vessels; occasioned by the swelling of the inclosed seeds. They are sufficiently evident in the pods

of *Mustard*, and in some sorts of *Beans*.

PULPY (pulpofus) soft and tenacious. A *Cherry* is pulpy, but an *Apple* is fleshy.

PULPY (drupa) **SEED-VESSEL**; consists of a nut or stone encompassed by a pulpy substance, exemplified in the *Plumb*, the *Cherry*, and the *Peach*. Pl. 5. f. 21.

PURSE-SHAPED (scrotiformis) like a purse that draws together with strings at the top; as the seed-vessel of the *Purple Marshlocks*, or the honey-cup of the *Satyrion*.

RADIATE (radiatus) a species of compound flowers in which the florets of the centre differ in form from those in the circumference. Thus the *Daisie* and *Sunflower* are radiate flowers; the florets in the centre are all tubular, but those in the circumference are narrow or strap-shaped. Pl. 4. f. 24.

..... **SUMMITS**; placed in a circle; as in the *Poppy*. Pl. 5. f. 5. (b.)

RECEPTACLE (receptaculum) one of the parts necessary to compose a flower. It is the base, or seat, upon which the other parts of a flower are placed. Pl. 4. f. 11. (c.) f. 23. (a.)

REFLECTED (reflexus) bent back, as the segments of the cup of the *Currant*; the petals of the *Flower de Luce*; the blossoms of the *Hyacinth* and *White Lily*. Pl. 4. f. 5.

REGULAR (regularis) Blossom; one that is regular in the figure, size, and proportion of its parts; as the *Jessamine* and *Syringo*.

REMOTE

REMOTE (*remotus*) **WHORLS**; when there is a considerable length of stem between each whorl. Pl. 6. f. 11. (*a. a. a.*)

RIGID (*strictus*) inflexible; opposed to limber and flexible.

ROLLED BACK (*revolutus*) with respect to the leaf in general, rolled downwards, as the ends of the leaves of *Sweet Williams*; pl. 9. f. 5. (*f. f.*) with respect to the edges, rolled inwards towards the rib of the leaf, as in the leaves of *Rosemary*, and the young leaves of the *Osier*; and in the summits, as the *Pink*. Pl. 1. f. 19. (*c. c.*)

ROOT (*radix*) may be *Fibrous*, *Bulbous*, *Tuberous*, *Bundled*, *Beaded*, *Spindle-shaped*, or *creeping*. See those terms. See also pl. 11.

ROOT-LEAVES (*radicalia*) the leaves that proceed immediately from the root, without the intervention of a stem. They often differ in shape and size from the other leaves. The *Field Bellflower* furnishes an example. Pl. 9. f. 7.

RUFFLE (*volva*) the membranaceous empalement of fungusses, furrounding the Pillar. Pl. 1. fig. H. (*a.*)

RUNDLE (*umbella*) a composition of flowers in which a number of slender fruit-stalks proceed from the same centre, and rise nearly to the same height, so as to form a regular surface at the top. *Hemlock*, *Carrot*, and *Cowparsnep*, are examples. Rundles of flowers are frequently called Umbels; and the plants producing them are said to be *umbelliferous* plants. Pl. 6. f. 9.

RUNDLET (*umbellula*) a little

rundle. The fruit-stalks which compose a rundle are often divided at the top into several small fruit-stalks, and these smaller sets of fruit-stalks are called *Rundlets*. *Hemlock*, *Carrot*, and *Angelica*, furnish instances. The fruit-stalks of a rundle, and of a rundlet, are called *Spokes*. Pl. 6. f. 9. (*b. b. b. b.*)

RUNNING (*decurrens*) *along the STEM*; means that a leaf has no leaf-stalk, and that its base is attached to the stem for a considerable length. The *Great White Mullein*, and the *Musk Thistle*, are examples. Pl. 9. f. 4. (*e.*)

SALVER-SHAPED (*hypocrateriformis*) the shape of a blossom of one petal, the lower part of which is tubular, the upper part flat and expanded; as the blossom of the *Periwinkle*, and the *Mouse-ear Scorpion Grass*. Pl. 4. f. 1.

SAUCER (*scutellum*) a sort of flower of the *Cupthong*, that is, circular and concave, like a china faucer. Pl. 1. f. F.

SCALY (*squamosus*) like the skin of a fish; as the cups of *Burdock*. Pl. 4. f. 25. (*a.*)

SCATTERED (*sparsus*) disposed without any regular order.

SCOLLOPED (*crenatus*) inspect the edges of the leaves of *Bird's-eye* and *Gill*, and you will have a true idea of this term. Pl. 7. f. 35. 34. 33.

SCORED (*striatus*) marked with superficial lines, as the cup of a *Pink*, or the stems of *Butchersbroom*.

SCURFY (*squarrosus*) applied to a cup, in compound flowers, the scales of which are bent outwards at the ends.

SEAM (*futura*) the line formed by the union of the valves of a feed-vessel. Thus the pod of a *Pea* is a feed-vessel of two valves, and the two seams where the valves join are sufficiently conspicuous. As also in pl. 5. f. 6.

SEED (*femen*) a deciduous part of a vegetable, containing the rudiments of a new plant. It consists of the **HEART**, the **SEED-LOBES**, the **EYE**, and the **SEED-COAT**. See those terms. Sometimes it is crowned with the cup of the flower, and sometimes it is winged with a feather, or with a thin expanded membrane, which enables the wind to waft it abroad. See pl. 4. f. 22. and pl. 6. f. 3.

SEED-BUD (*germen*) the lower part of a pointal. It is the rudiment of the embryo fruit. See **POINTAL**. Pl. 3. f. 2. (*d.*) f. 5. (*c.*) f. 7. (*i.*)

SEED-COAT (*arillus*) the proper coat of a feed which falls off spontaneously. It is remarkable in *Spindle-tree*, *Hound's tongue*, the *Cucumber*, the *Fraxinella*, and the *Mallow*. Some seeds have only a dry covering or skin, as the *Bean*. Pl. 6. f. 1. (*c. c.*)

SEED-COVER (*calyculus*) the real cover of the seed.

SEED-LOBES (*cotyledones*) The perishable parts of a seed, designed to afford nourishment to the young plant when it first begins to expand. A bean, after being soaked in water, or moist earth, easily parts with its external skin, and divides into two parts, called the **SEED-LOBES**. Pl. 6. f. 3. (*a. a.*)

SEED-VESSEL (*pericarpium*) a vessel to contain the feed. It is of several kinds; as a **CAPSULE**; a **POD**; a **SHELL**; an **AIR-BAG**; **PULPY**, including a nut or stone; an **APPLE**; a **BERRY**; and a **CONE**. See those terms. See also pl. 5. from f. 5 to f. 21.

SEGMENT (*lacinium*) the small parts of a leaf, a cup, or a petal, included between the incisions.

SEMI-CYLINDRICAL (*femiteres*) if the trunk of a tree was sawed lengthways thro' the middle, each part would be semi-cylindrical. The stalk of *Ramsons* is in this shape.

SEMINAL-LEAVES; those which arise immediately from a feed.

SEPARATE (*monoecia*) chives and pointals are said to be separate when they are found upon the same plant, but within different empalements. Thus in the *Box*, the *Birch*, the *Cucumber*, and the *Melon*, some of the empalements contain chives, and others contain pointals; but none of them contain both together. Pl. 1. f. 21.

SERPENTINE (*repandus*) the edge of some leaves is formed like a serpentine line; without any angles or corners. Pl. 7. f. 29.

SERRATED (*ferratus*) like the teeth of a common saw; as are the edges of the leaves of the *Apple*, the *Pear*, the *Spearmint*, the *Dead-nettle*, the *Sneezewort* or *Goosetongue*, &c. Some leaves are **DOUBLY SERRATED**; that is, the teeth are again cut into other little teeth. The *Common Elm* is an example. Pl. 7. f. 31. 32.

SHAFT (stylus) a part of a point, standing upon the seed-bud, and supporting the summit. See **POINTAL**. Pl. 3. f. 2. (e.) f. 5. (d.) f. 7. (k.)

SHARP (acutus) as the leaves of the *Jessamine*, or the segments of the cup of the *Primrose*. Pl. 3. f. 10. Pl. 7. f. 40.

SHARP-POINTED (mucronatus) ending in a hard sharp point.

SHEATH (spatha) a species of empalement, exemplified in the *Crocus*, the *Iris*, and the *Daffodil*. Pl. 3. f. 9. (a. a.)

SHEATHED FRUIT-STALK (spadix) one that is furnished with a sheath. Pl. 3. f. 9. (d.)

SHEATHING (vaginans) **LEAVES**; when the base of a leaf enfolds the stem; as in most of the *Grasses*. Pl. 9. f. 4. (i.)

SHEDDING (caducus) continuing but a short time. Applied to a cup; it signifies that it falls off before the blossom, as in *Poppy*.

SHELL (legumen) a feed-vessel of two valves, wherein the seeds are fixed to one seam only; as in the *Pea*, and most of the plants in the fourth order of the seventeenth class. Pl. 5. f. 16.

SHORT (abbreviatus) a cup is said to be short, when it is shorter than the tube of the blossom, as in pl. 4. f. 7. (c.)

SHRIVELLING (marcescens) fading and withered, but not falling off. e. g. The blossoms of *Plantain* and *Stitchwort*

SHRUBBY (fruticosus) somewhat woody, as the stems of the *Rose*.

SIMPLE (simplex) undivided.

..... **STEM**; one that is undivided; only sending out small branches.

..... **LEAF**; when there is only one upon a leaf-stalk.

..... **CUP**; one that consists of a single series of segments: e. g. *Goats-beard*.

..... **STALK**; undivided, as the stalks of *Tulips* and *Thrift*.

SINGLE (unicus) one flower only upon a stalk, as the *Tulip*.

SITTING (sessilis) **LEAVES**; have no leaf-stalk, as *Spear-mint* and *Hound's-tongue*.

..... **FLOWERS**; are those that have no **FRUIT-STALK**, as the flowers of *Mezereon*.

SKINNY (scariosus) tough, thin, and semi-transparent; as the cup of *Thrift*.

SLANTING (obliquus) straight, but between horizontal and perpendicular.

SNIPT (incisus) finely cut at the edges.

SMOOTH (glaber) surface even, without any inequalities; opposed to *rough*, *prickly*, or other inequalities occasioned by prominencies on the surface.

SOLITARY (solitarius) only one in a place; as but one flower on a fruit-stalk, and only one fruit-stalk proceeding from the same part of a plant.

SPATULA-SHAPED (spathulatus) the form of a leaf. Pl. 8. f. 64.

SPEAR-SHAPED (lanceolatus) as the leaf of *Ribwort Plantain*, and *Spear-mint*. Pl. 7. f. 6.

SPECIFIC CHARACTER. One or more circumstances of a plant sufficient

sufficient to distinguish it from every other plant of the same genus. The specific characters are generally taken from the leaves or stem; sometimes from the flowers, but seldom from the roots.

SPIKE (spica) a composition of flowers placed alternately on each side of a common simple fruit-stalk, and not standing upon little fruit-stalks. *Great Mullein, Agrimony,* and many of the *Grasses* have their flowers collected into spikes. Pl. 5. f. 5.

SPIKE-STALK (rachis) a long rough receptacle upon which the flowers composing a spike are placed. Take a spike (or as it is frequently called, an ear) of *Wheat*; pull off all the seeds and chaff: what remains is a **SPIKE-STALK**. Pl. 2. f. 24. (c. c.)

SPINDLE-SHAPED (fusiformis) gradually tapering **ROOT**. e. g. *Carrot*. Pl. 11. f. 6.

SPIRAL (spiralis) twisted like a cork-screw. Pl. 10. f. 6. (a. a.)

SPOKES (radii) the fruit-stalks of flowers collected into **RUNDLES** or **RUNDLETS**: see those terms. They spring from one point and diverge like the spokes of a cart wheel. Pl. 6. f. 9. (e. e. c. e.)

SPREADING (diffusus) not rising high, but spreading wide upon the ground; as the stems of *Fumitory* and *Pansie*.

SPUR (calcar) shaped like the spur of a cock, as the honey cups of the *Larkspur*.

STALK (scapus) that species of trunk which elevates and supports the flowers, but not the leaves of the plant. It differs from the **FRUIT-**

STALK, for that springs from the stem, or branches; but this rises immediately from the root: as in *Narcissus*; *Lily of the Valley*, and *Hyacinth*. Pl. 6. f. 4.

STANDARD (vexillum) the upright petal of a butterfly-shaped blossom; as in the *Pea*. See the introduction to the 17th class. See also pl. 4. f. 12. (b. f. 14. b) f. 15.

STARRY (stellatus) plants whose leaves grow in whorls round the stem; as the *Goosegrasses*, *Cheeserennet*, and several other plants in the fourth class. Pl. 9. f. 3. (b. b.)

STEM (caulis) the proper trunk of a plant supporting the leaves, branches and flowers. It rises immediately from the root.

STEM-LEAVES (caulina) such as grow immediately upon the stem without the intervention of branches.

STEM-LESS (acaulis) without a stem.

STINGS (stimuli) sharp pointed substances conveying poison into the part they penetrate. Few people are ignorant of the sting of a *Nettle*.

STONE. See *Nut*.

STRADDLING (divaricatus) branches standing wide from each other.

STRAP-SHAPED (linearis) long and narrow like a strap or a fillet; as the leaves of *Thrift*; *Crocus* and *Rosemary*. Pl. 7. f. 7.

STRAW (culmus) a kind of trunk proper to *Grasses*. Pl. 10. f. 3.

STRINGS (nervi) woody fibres, running undivided from the base to the extremity of leaves,

as in the broad and narrow-leaved *Plantain*. Pl. 7. f. 46.

SUCKERS (stolones) shoots that rise from the root, spread along the ground, and then take root themselves; as in the *Sweet Violet*.

SUMMIT (stigma) the upper part of a pointal. See **POINTAL**, pl. 3. f. 2. (f.) f. 5. (e.) f. 7. (l.)

SUPERIOR (superus) **CUP** or **BLOSSOM**: when the cup or blossom is situated above the seedbud, it is said to be superior; as in the *Honeysuckle*; *Currant* and *Campanula*.

SWORD-SHAPED (ensiformis) as the leaves of the *Iris* or *Flower de Luce*.

TAPER (acuminatus) tapering to a point. Pl. 7. f. 41.

..... (attenuatus) a fruitstalk, tapering upwards.

TARGET. A kind of flower in the genus *Cupthong*, that is circular and convex. See **SAUCER**.

TENDRIL (cirrus) a spiral shoot or string, by means of which some plants support themselves against the adjacent bodies. It is well known in the *Vine* and *Pea*. Pl. 10. f. 6. Pl. 8. f. 58.

TERMINATING (terminalis) (opposed to lateral) standing at the ends of the stem or branches; as the fruit-stalks of *Borage*, the blossoms of *Groundsel*.

THORN (spina) a sharp pointed projection growing from the woody substance of a plant; as in *Gorze* and *Blackthorn*. Pl. 10. f. 1.

THREAD (filamentum) a part of a chive supporting the tip. See **CHIVE**. Pl. 3. f. 3 (h.) f. 6. (g.) Pl. 1. f. 19. (a. a.)

THREAD-SHAPED (filiformis) of the same thickeness from top to bottom, like a piece of packthread. Take for example the leaves of *Fennel*, or the shaft of the *Crocus*, or *Honeysuckle*.

THREE-EDGED (trigonus) a stem having three corners or angles and the sides not flat.

THREE-FIBRED (trinervatus) having three veins or vessels running from the base to the end of a leaf, without branching off.

THREE-SQUARE (triqueter) having three corners or angles with flat sides; as the stem of the *Pansie*.

THRONGING (confluentia) assembled in close parcels, with intervening naked places.

TILED (imbricatus) one leaf or scale partly covering another like the tiles on a house. e. g. The cup of *Dandelion* or of *Burdock*. Pl. 4. f. 25. (a.)

TIP (anthera) a part of a chive fixed upon the thread, and containing the dust. In *Dogs Mercury* it hath one cell; in *Hellebore* two; in *Orchis* three; in *Fritillary* four; see **CHIVE**. Pl. 3. f. 2. (c. c. c. c. c. c.) f. 5. (b. b. b. b. b. b.) f. 6. (h.)

TOOTHED (dentatus) when the edges of a leaf are set with little teeth, not pointing towards the end as in the serrated leaves, nor towards the base as in the inversely serrated leaves. *Common Eyebright*; *Primrose*; *Cowslips*; and *Mountain Willowherb*, have toothed leaves. Pl. 7. f. 30.

TRAILING (procumbens) **STEMS**; lying along upon the ground, and not sending out roots. e. g. *Com-*

e. g. *Common Speedwell*, *Red Pimpernel*, *small Sea Bindweed*.

TREBLY COMPOUND. See **TRIPLY COMPOUND.**

TRIANGULAR (*triangularis*) expressing the form of a leaf that hath three sides and three angles, or corners. Pl. 7. f. 12.

TRIANGULARLY SPEAR-SHAPED (*deltoideus*) leaves in this form are broad at the base and nearly triangular, but spear-shaped at the point. e. g. *Black Poplar*. Pl. 7. f. 45.

TRIPLY COMPOUND LEAVES (*folia supra decomposita*) are of three kinds, viz.

1. **DOUBLE TWINFORK** (*tergeminus*) leaf-stalk, with two leaflets at the end of each, and two more at the division of the fork. Pl. 8. f. 57.
2. **TRIPLY THREEFOLD** (*triter-natus*, *triplicato - ternatus*.) Pl. 8. f. 59. the divisions of a triple leaf-stalk again sub-divided into *threes*, and three leaflets at the end of each subdivision.
3. **TRIPLY WINGED** (*tripinnatus* ; *triplicato - pinnatus*) when the lateral ribs of a doubly winged leaf, have themselves other leaf-stalks with winged leaves. Pl. 8. f. 60. 61.

TRUNK (*truncus*) the main body of a plant: it is either a **STEM**, a **STALK**, a **STRAW**, or a **PILLAR**. See those terms.

TUBE (*tubus*) the lower part of a blossom of one petal is frequently lengthened out into a tube, as in *Crocus* and *Polyanthus*. Pl. 4. f. 1. (a.) f. 7. (a.)

TUBERCLE (*tuberculus*) a little solid pimple.

TUBEROUS (*tuberosus*) **ROOT**; consisting of many roundish knobs collected into a bundle, as the root of *Peony* and *Dropwort*. Pl. 11. f. 7.

TUBULAR (*tubulosus*) in the shape of a hollow tube, as the cup of *Privet*, the blossom of the *Honeysuckle*, or the honey-cup of the *Hellebore*.

..... **FLORETS**, in compound flowers, are shaped like a hollow tube, and the top is cloven into five segments. In the *Tansy* all the florets are tubular, but, in the *Sunflower* and the *Daisy*, only those in the centre. Pl. 4. f. 26.

TUFT (*cyma*) a composition of flowers in which a number of fruit-stalks proceeding from one common centre, rise to the same height; and these again shoot out other little fruit-stalks, which do not proceed from one central point. The *Elder*, the *Gelder Rose*, and the *Laurustinus*, are instances. Pl. 6. f. 10.

TURBAN-SHAPED (*turbinatus*) like a Turkish turban; exemplified in the cup of the *Elm*, or *French Wheat*; some *Pears* are in this form.

TWINING (*volubilis*) twisting round other bodies, and ascending in a spiral line. Some plants twine from the left to the right < in the direction of the sun's apparent motion, as *Hop*, *Honeysuckle*, and *Black Briony*. Others twine from the right to the left > contrary to the sun's apparent motion, as *Bindweed* and *Scarlet Kidney Bean*. Pl. 10. f. 5.

TWIN-

TWIN-FORK (bigeminus) see **DOUBLY COMPOUND LEAVES**.

TWO-EDGED (anceps) as the stem of *Tutsan*, and the *Sweet-smelling Solomon's Seal*.

TWO-ROWED (distichus) like the teeth in a double box, or ivory comb. The leaves of the common *Fir*, and the flowers of *Sweet Cyperrus*, are examples.

UMBEL. See **RUNDLE**.

UNARMED (inermis) without weapons of defence. See **WEAPONS**.

UNDIVIDED. See **SIMPLE**.

UNEQUAL FLORETS (radiati) when a rundle is not composed of equal florets, but those in the circumference are larger than those in the centre, and the outer petals are larger and different in shape from the inner petals. As in the *Carrot* and *Cowparsnep*. See **RADIATE**, for Linnæus uses the same term (radiatus) to express the dissimilarities of the florets in the rundle-bearing plants of the 5th Class, as well as those of the compound flowers of the 19th.

UNIFORM (equalis) a term applied to compound flowers when the florets that compose them are all alike; as those of *Fennel*, *Lettuce*, and *Burdock*.

UNITED (connatus) **LEAVES**, two opposite leaves growing together at the base. Pl. 9. f. 4. (*h. h.*)

UPRIGHT (erectus) standing upright, as the cups of *Periwinkle*, the tips of *Polyanthus*; the stalks of *Tulips*; the stems of *Sparagus*. It is also applied to leaves. Pl. 9. f. 5. (*b. b.*)

VALVE (valvula) the different pieces that compose a capsule are

called valves. Thus in the *Thorn-apple* there are four valves. Pl. 5. f. 14. (*c. c. c. c.*) In the *Loose-strife* ten, in *Jacob's Ladder*, *Daffodil*, and *Hyacinth* three. Pl. 5. f. 6. f. 12. (*a. a.*)

..... The petals and empalements that constitute the flowers of Grasses, are called valves; thus in the *Common Meadow Grass* the empalement is a dry chaffy husk, composed of two valves, and the blossom is formed of two other valves. See pl. 2. f. 1. (*a. a.*) (*b. b.*) and most of the other figures in that plate.

..... The mouth of the tube of a blossom is frequently closed by several projecting substances; thus in the blossoms of *Borage*, and *Jacob's Ladder*, the tube is closed by five of these substances, and they are called valves.

VANE-LIKE (versatilis) turning about like a vane, or weathercock, as is the case with the tips of *Geranium* and *Crown Imperial*.

VAULTED (fornicatus) like the roof of one's mouth. The upper lip of many of the gaping blossoms is vaulted; e. g. red and white *Deadnettle*.

VEIL (calyptra) the empalement of mosses, covering the tips. It is generally in a conical form, like an extinguisher. Pl. 1. f. D. (*a.*)

VIVIPAROUS (viviparus) a term applied to stems or stalks producing bulbs that are capable of vegetation. In *Toothwort* and *Star of Bethlem*, these bulbs are found at the base of the leaves; in *small Bistort*, on the lower part of the spike; in some species of *Garlic* at the

the origin of the rundle of flowers; and upon the spikes of some of the grasses, as the *Cat's-tail* Canary.

WARTY (verrucosus) having little hard lumps or warts upon the surface.

WAVED (undatus) when the surface of a leaf towards the edge does not lie flat, but appears waved, and full, like a man's ruffle. The leaf of the *Water Caltrops* is an example. Pl. 8. f. 66.

WEAPONS (arma) are either **PRICKLES**, **THORNS**, or **STINGS**. Pl. 10. See those terms.

WEDGE-SHAPED (cuneiformis) as the leaves of the *Garden Spurge*, and the *Garden Purslain*. Pl. 8. f. 65.

WHEEL-SHAPED (rotatus) a term used to express a blossom of one petal, with a flat border and a very short tube. *Borage* and *Speedwell* are familiar examples. Pl. 4. f. 6.

WHORLS (verticilli) of **BRANCHES**, **LEAVES**, or **FLOWERS**. The branches of the *Fir*, the leaves of *Ladies Bed-straw*, and the flowers of the red and white *Deadnettle*, grow in whorls round their respective stems. They somewhat resemble the spokes round the nave of a wheel. Pl. 6. f. 11.

WINGS (alæ) the lateral petals of a butterfly-shaped blossom; e. g. in the *Pea*. See the introduction to the seventeenth class. See also pl. 4. f. 13. (c. c.) and f. 16.

WINGED (alatus) **LEAF-STALK**, flattish, with a thin membrane or leasy border on each side.

WINGED (pinnatus) **LEAF**; when an undivided leaf-stalk hath many little leaves growing from each side, as in *Jacob's Ladder*, *Bladder Sena*, *Ash*, and *Pea*. Pl. 8. f. 52. 53. 54. &c.

WINGED CLEFT (pinnatifidus) applied to a leaf that is cut and divided so deeply on each side, down towards the middle rib, as almost to resemble a winged leaf. The *Corn Poppy* and the *Polypody* are examples; and so are the root-leaves of the *Shepherd's Purse*.

WINGED SHOOTS (furculi pennati) when the shoots strike out from the sides, like the plumage along the sides of a quill. Instances will be found in several species of the *Feathermoss*.

WIRES (flagelli) barren twigs or shoots lying upon the ground, as in the *Garden Strawberry* and *Stone Bramble*.

WOODY (arbores) opposed to herbaceous. The stems of the *Wallflower* or *Gilliflower* are woody.

WOOL (lana) a kind of downy clothing upon the surface of some plants. The leaves of *Horehound*, *Great Mullein* and *Gorze* are woolly.

WOOLLY (villosus) covered with distinct soft hairs.

WRINKLED (rugosus) as are the leaves of *Sage*, *Primrose*, *Wood Strawberry*, and *Hassel*.

ZIG ZAG (flexuosus) having many turnings and bendings, as the stems of *Rough Bindweed*, and *Woody Nightshade*, or the branches of *Golden Rod*.

T H E

LATIN TERMS of LINNÆUS.

With the corresponding *English* Words.

N. B. The following Alphabetical List of the Terms used by LINNÆUS will be extremely useful to the learner, as by its assistance he will be enabled to understand other botanical books which he may wish to consult. The Ladies too, who in spite of the obstacles attendant upon a dead language, often having recourse to LINNÆUS in the original, will find their labours greatly facilitated by it. And, lastly, the *learned* botanist will, by the inspection of it, be convinced how little occasion there is to call in foreign terms, to the aid of a language so copious as is our own.

ABBREVIAT'US, *short.*

Aborti'vi (flosculi) *barren.*

Abrup'tus, *abrupt.*

Acau'lis, *stem-less.*

Acero'sus, *chaffy.*

Acicula'ris, *needle-shaped.*

Acinacifor'mis, *scymetar-shaped.*

Aci'ni, *granulations.*

Acotyledo'nes, *seeds without lobes.*

Acu'lei, *prickles.*

Aculea'tus, *prickly.*

Acumina'tum (sol.) *tapering to a point.*

Acu'tus, *sharp.*

Adna'tus, *connected.*

Adpres'sus, *contiguous.*

Adscen'dens, *ascending.*

Æqua'lis, *equal.*

Aggrega'tus, *incorporated.*

A'la, *wing.*

Ala'tus, *winged seed, or leaf-stalk.*

Albur'num, *a soft white substance between the inner bark and the wood.*

Al'gæ, *the 3d order of the 24th class.*

Alter'nus, *alternate.*

Amen'tum, *catkin.*

Amplexica'ulis, *embracing the stem.*

An'ceps, *two-edged.*

Androgy'na (planta) *bearing both chives and pontals.*

Angula'tus, *angular.*

Angustifo'lius, *narrow-leaved.*

Angiosper'mia, *seeds covered.*

An'nuus, *annual.*

Anomala, *without order.*

An'there,

- An'thera, *tip*.
 Apet'alus, *without petals*.
 A'pex, *point*.
 Apoph'y'sis, *excrescence in mosses*.
 Appendicula'tus, *with an appendage*.
 Approxima'tus, *nearly upright*.
 Arbo'reus, *woody*.
 Arcua'tus, *bowed*.
 Aril'lus, *see Caliculus*.
 Aril'ta, *awn*.
 Ar'ina, *weapons*.
 Articula'tus, *jointed*.
 Asperifo'lia, *rough-leaved*.
 Affur'gens, *rising*.
 Attenua'tus, *tapering upwards*.
 Auc'tus, *leafy*.
 Auricula'tus, *ear-shaped*.
 Ave'nis, *without veins*.
 Axilla'ris, *at the base or bosom of the leaves*.
 Bac'ca, *berry*.
 Bar'ba, *beard*.
 Barba'tus, *bearded*.
 Bicap'sula'ris, *two capsuled*.
 Bien'nis, *biennial*.
 Bifa'rius, *opposite*.
 Bif'idus, *clef or cloven*.
 Biflo'rus, *two-flowered*.
 Bigem'inus, *twinfork*.
 Biju'gum, *two couple*.
 Bilabia'tus, *two-lipped*.
 Bilo'bum, *two lobes*.
 Bina'tus; *in pairs*.
 Bilocula'ris, *two celled*.
 Biparti'tus, *having two divisions*.
 Bipinna'tus, *doubly winged*.
 Biterna'tus, *doubly threefold*.
 Bival've (pericarpium) *two-valved*.
 Brachia'tus, *see Decussatus*.
 Brac'tea, *floral-leaf*.
 Bulbo'sus, *bulbous*.
 Bul'bus, *bulb*.
 Bulla'tus, *blistered*.
 Cadu'cus, *shedding*.
 Cæspito'sus, *matted together*.
 Cal'car, *a spur*.
 Calicula'tus, *cup double*.
 Calic'ulus, *seed-coat cover*.
 Calyp'tra, *veil*.
 Ca'lyx, *empalement*.
 Campanula'tus, *bell-shaped*.
 Canalicula'tus, *channelled*.
 Capilla'ris, *hair-like*.
 Capita'tus, *growing in heads*.
 Capit'ulum, *knob*.
 Capit'ulus, *flowering head*.
 Capre'olus, *see Cirrhus*.
 Cap'sula, *capsule*.
 Cari'na, *keel*.
 Carina'tus, *boat-shaped, or keeled*.
 Carno'sus, *fleshy*.
 Cartilagin'eus, *gristly*.
 Catenula'tus, *chained*.
 Cat'ulus, *see Amentum*.
 Cau'da, *tail*.
 Cau'dex, *body*.
 Caule'scens, *having a stem*.
 Cauli'nus, *belonging to the stem*.
 Cau'lis, *stem*.
 Cer'nuus, *crooked, when applied to fruit-stalks*.
 Cilia'tus, *fringed*.
 Cin'gens, *binding round*.
 Circumcis'sus, *cut round*.
 Cirrho'sum (fol.) *terminating in a tendril*.
 Cir'rhus, *tendril*.
 Claf'fis, *class*.
 Clau'sus, *closed*.
 Clava'tus, *club-shaped*.
 Clavic'ula, *see Cirrhus*.
 Coaduna'tus, *joined*.
 Coarcta'tus, *compact*.
 Cochlea'tus, *like a snail-shell*.
 Colora'tus, *coloured*.
 Columnel'la, *column*.
 Columna'ris, *a square pillar*.
 Co'ma, *comb*.
 Commu'nis,

- Commu'nis, *common*.
 Compac'tus, *firm*.
 Comple'tus, *perfect*.
 Compos'itus, *compound*.
 Compres'sus, *compressed*.
 Conca'vus, *concave*.
 Conduplica'tus, *doubled together*.
 Confer'tus, *crowded*.
 Confluen'tia (sol.) *thronging; uniting*.
 Conges'tus, *collected into a ball*.
 Conglomera'tus, *close*.
 Co'nicus, *conical*.
 Conna'tus, *united (leaves)*.
 Conni'vens, *approaching*.
 Conni'vens calyx, *closing (cup)*.
 Contra'rius, *contrary*.
 Convex'us, *convex*.
 Convolu'tus, *bent from left to right*.
 Cor'culum, *heart of a seed*.
 Corda'tus, *heart-shaped*.
 Coria'ceus, *leather-like*.
 Cornu'tus, *horn-shaped*.
 Corol'la, *blossom*.
 Coro'na, *crown*.
 Corona'tus, *crowned*.
 Cor'tex, *bark*.
 Coryn'bus, *broad-topped spike*.
 Cotyledo'nes, *seed-lobes*.
 Crena'tus, *scalloped*.
 Cris'pus, *curled*.
 Crista'tus, *crested*.
 Crucia'tus, *cross-shaped*.
 Cryptoga'mia, *class 24, flowers inconspicuous*.
 Cuculla'tus, *hooded*.
 Cul'mus, *straw*.
 Cuneifor'mis, *wedge-shaped*.
 Cuspida'tus, *spit-pointed*.
 Cyathifor'mis, *glass-shaped*.
 Cylin'dricus, *cylindrical; see teres*.
 Cy'ma, *tuft*.
 Deb'ilis, *feeble*.
 Decagyn'ia, *ten pointals*.
 Decan'dria, *class 10, ten chives*.
 Decaphyl'lus, *ten-leaved*.
 Decid'uus, *deciduous*.
 Declina'tus, *declining*.
 Decompos'itus, *doubly compound*.
 Decum'bens, *lying down*.
 Decur'rens, *running along the stem*.
 Decursi'vus, *running along (the leaf-stalk)*.
 Decussa'tus, *cross pairs*.
 Deflex'us, *a little bent outwards*.
 Deflora'tus, *having discharged the dust*.
 Deltoide'us, *triangular spear-shaped*.
 Demers'us, *see Submersus*.
 Dendroi'des, *shrubby*.
 Denta'to-sinua'tus, *toothed and indented*.
 Denta'tus, *toothed*.
 Denticula'tus, *with little teeth*.
 Depen'dens, *hanging down*.
 Depres'sus, *depressed*.
 Diadel'phia, *class 17, threads in two sets*.
 Dian'dria, *class 2, two chives*.
 Dichot'omus, *forked*.
 Did'y'mus, *double*.
 Didyna'mia, *class 14, two chives longer*.
 Diffor'mis, *irregular and uncertain shaped*.
 Diffu'sus, *spreading*.
 Digita'tus, *fingered*.
 Digyn'ia, *two pointals*.
 Dimidia'tus, *going half way round*.
 Dioe'cia, *class 22, chives and pointals distinct*.
 Diphyl'lus, *two-leaved*.
 Dis'cus, *centre*.
 Dissec'tus, *see Laciniatus*.
 Disper'ma *two seeded*.
 Dissepimen'tum, *partition*.
 Disti'cens, *curling*.
 Distans, *distant*.
 Distichus, *two-rowed*.
 Divarica'tus,

Divarica'tus, *straddling*.
 Diver'gens, *diverging*.
 Dodecagyn'ia, *twelve pointals*.
 Dodecan'dria, class 11, *twelve chives*.
 Dolabrifor'mis, *battledore-shaped*.
 Dorfa'lis, *fixed to the back*.
 Dru'pa, *pulpy seed vessel*.
 Duplica'tus, *doubled*.
 Echina'tus, *beset with prickles*.
 Ellip'ticus, *see Ovalis*.
 Emargina'tus, *notched at the end*.
 Ener'vis, *without strings*.
 Ennean'dria, class 9, *nine chives*.
 Eno'dis, *without joints*.
 Ensisfor'mis, *sword-shaped*.
 E'quitans, *laminated*.
 Erec'tus, *upright*.
 Ero'sus, *gnawed*.
 Exser'tus, *standing out*.
 Extrafolia'ceus, *beneath the leaves*.
 Farc'tus, *full*.
 Fari'na, *dust*, *see Pollen*.
 Fascicula'ris, } *bundled*.
 Fascicula'tus, }
 Fascic'ulus, *a bundle*.
 Fastigia'tus, *level*.
 Faux', *mouth*.
 Femin'eus Flos. *fertile flower*.
 Fer'tiles, *fertile*.
 Fibro'sus, *fibrous*.
 Filamen'tum, *thread*.
 Fili'ces, *ferns*, the 1st order of the
 24th class.
 Filifor'mis, *thread-shaped*.
 Imbrica'tus, *tattered*.
 Fis'sus, *cloven*.
 Fistulo'sus, *hollow*.
 Llac'idus, *limber*.
 Flagel'lum, *a wire*.
 Flexuo'sus, *zigzag*.
 Flora'lis, *floral* (leaf.)
 Flos, *flower*.
 Flos'culus, *floret*.
 Flosculo'sus, *tubular* (floret)

Folia'tus, *covered with leaves*.
 Folia'ceus, *leafy*.
 Fo'lium. *leaf*.
 Foli'olum, *leaflet*.
 Follic'ulus, *airbag*.
 Fornica'tus, *vaulted*.
 Frutico'sus, *shrubby*.
 Fructifica'tio, *flower and fruit*.
 Fruc'tus, *fruit*.
 Ful'cra, *supporters*.
 Fun'gi, *fungusses*, the 4th order of
 the 24th class.
 Fur'ca, *fork*.
 Furca'tus, *forked*.
 Fusifor'mis, *spindle-shaped*.
 Ga'lea, *helmet*.
 Gem'inis, *in pairs*.
 Gem'ma, *bud*.
 Ge'nus, } *see the introduction*.
 Gen'era, }
 Genicula'tus, *knee-jointed*.
 Genic'ulum, *knee-joint*.
 Ger'men, *seed-bud*.
 Gib'bus, *hunched*.
 Gla'ber, *smooth*.
 Gland'ula, *gland*.
 Globo'sus, *globular*.
 Glo'chis, *hook with many points*.
 Glomera'tus, *congregated*.
 Glu'ma, *husk*.
 Glutinos'itas, *gummy*.
 Gram'ina, *grasses*.
 Granula'tus, *beaded*.
 Gymnosper'mia, *seeds naked*.
 Gynan'dria, class 20, *chives on the*
 pointal.
 Ha'mus, *hook*.
 Hasta'tus, *halberd-shaped*.
 Hemispher'icus, *hemispherical*.
 Heptan'dria, class 7, *seven chives*.
 Herba'ceus, *herbaceous*.
 Hermaphrodi'tus, *flowers containing*
 both chives and pointals.
 Hexago'nus, *six-sided*.
 Hexagyn'ia,

- Hexagyn'ia, *six Pointals.*
 Hexan'dria, *class 6, six chives.*
 Hi'lum, *eye of a seed.*
 Hiru'tus, *rough with hair.*
 Hil'pidus, *covered with strong hair.*
 Horizonta'lis, *horizontal.*
 Hypocraterifor'mis, *salver-shaped.*
 Icosan'dria, *class 12, twenty chives.*
 Imbrica'tus, *tiled.*
 Ina'nis, *pithy.*
 Inca'nus. *See Tomentosus.*
 Inci'sus, *snipt.*
 Inclina'tus, *leaning.*
 Inclu'sus, *inclosed.*
 Incomple'tus, *imperfect.*
 Incrassa'tus, *thicker towards the top.*
 Incumben'tes, *fixed side-ways.*
 Incurva'tus, *bowed inwards.*
 Iner'mis, *unarmed.*
 In'ferus, *beneath.*
 Infla'tus, *bladder-shaped.*
 Inflex'us, *bent inwards.*
 Inflorescen'tia, *mode of flowering.*
 Infundibulifor'mis, *funnel-shaped.*
 In'teger, *entire.*
 Integer'rius, *very entire.*
 Interrup'tus, *interrupted.*
 Intrafolia'ceus, *within the leaves.*
 Involucel'lum, *partial fence.*
 Involu'crum, *fence.*
 Involu'tus, *rolled inwards.*
 Irregula'ris, *irregular.*
 Labia'tus, *having lips.*
 La'bium, *lip.*
 La'cerus, *ragged.*
 Lacin'ia, *segments.*
 Lacinia'tus, *jagged.*
 Lactel'cens, *milky (juices)*
 Lacuno'sus, *pitted.*
 Læ'vis, *even.*
 Lamel'læ, *gills.*
 Lam'ina, *limb.*
 La'na, *wool.*
 Lana'tus, *cobwebbed.*
 Lanceola'tus, *spear-shaped.*
 Latera'lis, *lateral.*
 Lax'us, *limber.*
 Legu'men, *shell.*
 Lepro'sus, *spotted like a leper.*
 Li'ber, *the inner bark.*
 Ligula'tus, *strap-shaped.*
 Lim'bus, *border.*
 Lin'ea, *a line.*
 Linea'ris, *strap-shaped.*
 Linea'tus, *streaked.*
 Lingula'tus, *tongue-shaped.*
 Loba'tus, *gashed.*
 Lo'bus, *lobe.*
 Loculamen'tum, *cell.*
 Lon'gus, *long.*
 Lu'cidus, *transparent.*
 Luna'tus, *crescent-shaped.*
 Lyra'tus, *lyre-shaped.*
 Magnitu'do, *size.*
 Marcel'cens, *shrivelling.*
 Margina'tus, *bordered.*
 Ma'culus, *barren.*
 Membrana'ceus, *membranaceous.*
 Monadel'phia, *class 16, threads united.*
 Monan'dria, *class 1, one chive.*
 Mone'cia, *class 21, chives and pointals separate.*
 Monogy'nia, *one pointal.*
 Monopet'ala, *one petal.*
 Monophyl'lus, *one leaved.*
 Mucrona'tus, *sharp-pointed.*
 Multif'idus, *many clefted.*
 Multiflo'ri, *many flowered.*
 Multiparti'tus, *deeply divided into many parts.*
 Murica'tus, *covered with sharp points.*
 Mus'ci, *mosses, the 2d order of the 24th class.*
 Mu'ticus, *without awns.*
 Na'tans, *floating.*
 Navicula'ris, *boat shaped.*
 Necta'rium, *honey-cup.*

Nervo'sus.

Nervo'fus, *stringy*.
 Nidulan'tia, (Semina) *dispersed in pulp*.
 Nit'idus, *glossy*.
 Nu'dus, *naked*.
 Nu'tans, *nodding*.
 Nux, *nut*.
 Obcorda'tus, *inversely heart-shaped*.
 Obli'quus, *slanting*.
 Oblon'gus, *oblong*.
 Obsole'te, *indistinctly*.
 Obtu'fus, *blunt*.
 Octogyn'ia, *eight pointals*.
 Octan'dria, *class 8, eight chives*.
 Oper'culum, *lid*.
 Opercula'tus, *covered with a lid*.
 Oppositifo'lius, *opposite the leaves*.
 Oppos'itus, *opposite in pairs*.
 Orbicula'tus, *round and flat*.
 O're Perian'thii, *rim of the cup*.
 Os'seus, *hard as bone*.
 Ova'lis, *oval*.
 Ova'tus, *egg-shaped*.
 Pa'gina, *surface*.
 Pala'tum, *palate*.
 Pa'lea, *chaff*.
 Palea'ceus, *chaffy*.
 Palma'tus, *hand-shaped*.
 Pandurifor'mis, *saddle-shaped*.
 Panic'ula, *panicle*.
 Panicula'tus, *panicled*.
 Papiliona'ceus, *butterfly-shaped*.
 Papillo'fus, *pimpled*.
 Pap'pus, *feather*.
 Paralle'lus, *parallel*.
 Parasit'icus, *parasitical*.
 Partia'lis, *partial*.
 Parti'tus, *divided*.
 Pa'tens, *expanding*.
 Pat'ulus, *open*.
 Peda'tum (fol.) *birds-footed*.
 Pedicel'lus, *little fruit-stalk*.
 Peduncula'ris, *belonging to a fruit-stalk*.

Peduncula'tus, *growing on fruit-stalks*.
 Pedun'culus, *fruit-stalk*.
 Pelta'tum (fol.) *with a leaf-stalk fixed in the centre of a leaf*.
 Pelta'tum, *target-shaped*.
 Pencillifor'mis, *pencil-shaped*.
 Pen'dulus, *pendant*.
 Pentago'nus, *five-sided*.
 Pentagyn'ia, *five pointals*.
 Pentan'dria, *class 5, five chives*.
 Pentapet'ala, *five petals*.
 Pentaphyll'us, *five-leaved*.
 Peren'nis, *perennial*.
 Perfolia'tus, *perforated (leaf)*.
 Perian'thium, *cup*.
 Pericar'pium, *seed-vessel*.
 Perichæ'tium, *receptacle of mosses*.
 Perfil'tens, *permanent*.
 Persona'tus, *gaping*.
 Pet'alum, *petal*.
 Petalifor'mis, *resembling a petal*.
 Petiolar'is, *fixed to the leaf-stalk*.
 Petiola'tus, *having leaf-stalks*.
 Peti'olus, *leaf-stalk*.
 Pil'eus, *hat*.
 Pil'i, *hairs*.
 Pilo'fus, *hairy*.
 Pinnatif'idus, *with winged clefts*.
 Pinna'tus, *winged*.
 Pistil'lum, *pointal*.
 Pla'nus, *flat*.
 Ple'nus flos, *double blossom*.
 Plica'tus, *plaited*.
 Pluma'tus, *plumed*.
 Plumo'fus, *dowry*.
 Plumula, *the ascending part of the heart of a seed*.
 Pol'len dust.
 Polyadel'phia, *class 18, threads in many sets*.
 Polyan'dria, *class 13, many chives*.
 Polyga'mia, *class 23, various dispositions*.

Poly-

- Polygyn'ia, *many pointals.*
 Polyphyl'lus, *many-leaved.*
 Polysta'chius, *many spi ed.*
 Po'mum, *apple; a fleshy seed-vessel.*
 Po'ri, *pores.*
 Pos'ticus, *hinder part.*
 Præmor'sus, *bitten.*
 Prismat'icus, *prism-shaped.*
 Procum'bens, *trailing.*
 Pro'lifer, *headed stem.*
 Prolif'eri flores, *one growing out of another*
 Promin'ulum, *prominent.*
 Propa'go, *off-set.*
 Prop'rius, *individual blossom.*
 Pu'bes, *cloathing.*
 Pulpo'sus, *pulpy.*
 Pulvera'tus, *dusted.*
 Punct'us, *dotted.*
 Quina'tum (fol.) *by fives.*
 Race'mus, *bunch.*
 Ra'chis, *spike-stalk.*
 Radia'tus, *radiate.*
 Radica'lia (fol.) *root-leaves.*
 Rad'icans, *striking root.*
 Ra'dius, *circumference.*
 Ra'dii, *spokes.*
 Ra'dix, *root.*
 Ra'meus, *a branch-leaf, or fruit-stalk.*
 Ramosif'simus, *greatly branched.*
 Ramo'sus, *branching.*
 Ra'mus, *branch.*
 Receptac'ulum, *Receptacle.*
 Reclina'tus, *curved.*
 Recurva'tus, *bent backwards.*
 Rec'tus, *straight.*
 Reflex'us, *reflected.*
 Regula'ris, *regular.*
 Remo'tus, *remote.*
 Reniformis, *kidney-shaped.*
 Repan'dus, *serpentine.*
 Re'pens, } *creeping.*
 Rep'tans, }
 Resupina'tus, *lying on its back.*
 Retror'sum finua'tum, *barbed.*
 Retror'sum ferra'tum, *inversely serrated.*
 Retrofrac'tus, *bent back as if broken.*
 Retu'sus, *indented.*
 Revolu'tus, *rolled back.*
 Rhoinbe'us, *diamond-shaped.*
 Rig'idus, *inflexible.*
 Rimo'sus, *abounding with chinks.*
 Rin'gens, *gaping.*
 Rostellum, *the descending part of the heart of a seed.*
 Ros'trum, *bill.*
 Rotat'us, *wheel-shaped.*
 Rugo'sus, *wrinkled.*
 Runcina'tus, *notched.*
 Sagitta'tus, *arrow-shaped.*
 Sarmento'sus, *having runners.*
 Sca'ber, *rough.*
 Scan'dens, *climbing.*
 Sca'pus, *stalk.*
 Scario'sus, *skinny.*
 Scrotiformis, *purse-shaped.*
 Scutel'lum, *a scancer.*
 Scy'phifer, *cup-bearing.*
 Secun'dus, *pointing one way.*
 Securiformis, *hatchet-shaped.*
 Se'men, *seed.*
 Semite'res, *semi-cylindrical.*
 Sempervi'rens, *evergreen.*
 Se'nis, *by sixes.*
 Seric'eus, *silky.*
 Serra'tus, *serrated.*
 Sef'filis, *sitting.*
 Seta'ceus, *bristly.*
 Se'tæ, *bristles.*
 Silic'ula, *pouch.*
 Sil'iqua, *pod.*
 Sim'plex, *simple.*
 Simplicif'simus, *undivided.*
 Sinua'tus, *indented.*
 Sol'idus, *solid.*
 Solita'rius, *solitary.*
 Spa'dix, *sheathed fruit-stalk.*
 Spar'fus,

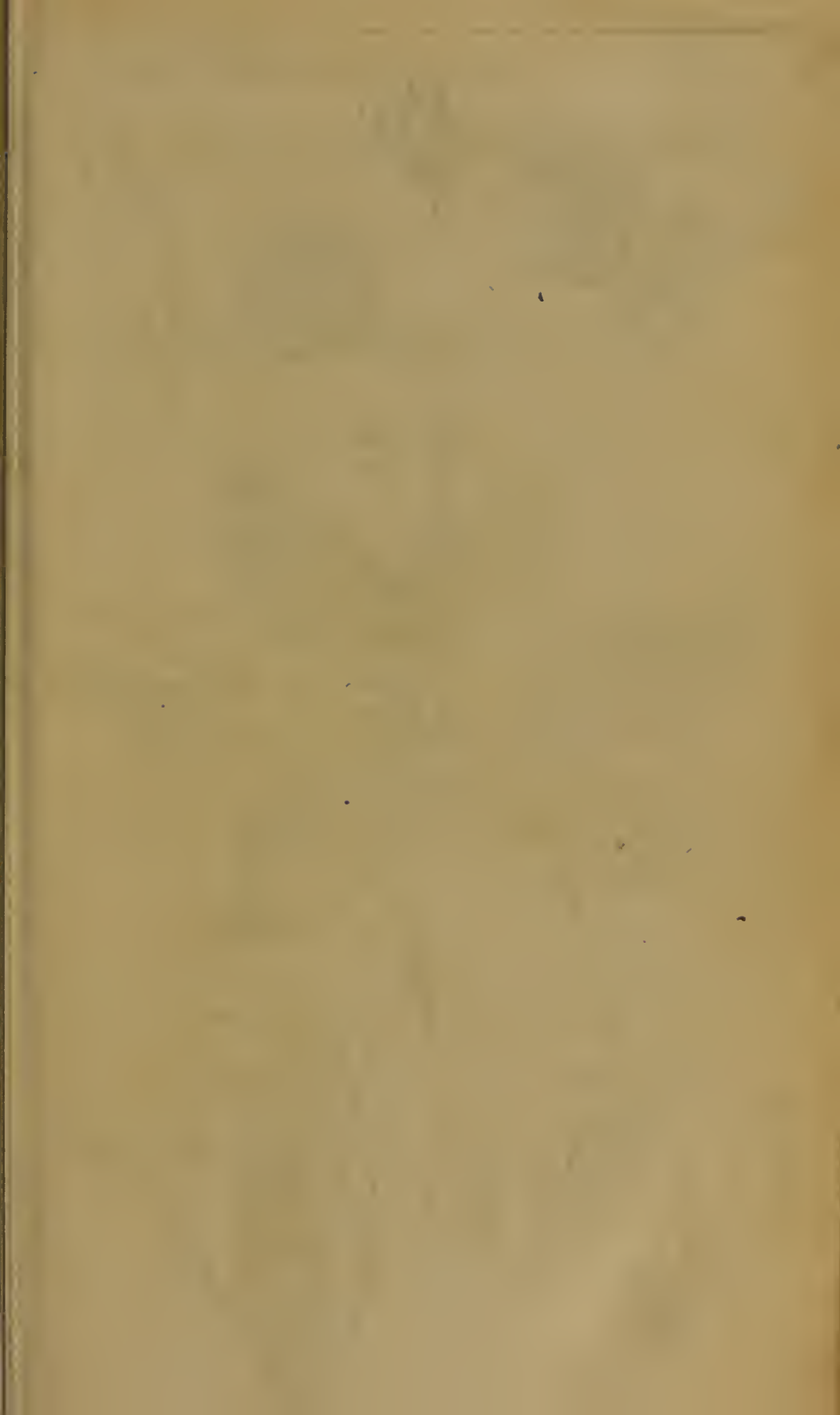
Spar'fus, *scattered.*
 Spa'tha, *sheath.*
 Spathula'tus, *spatula-shaped.*
 Spi'ca, *spike.*
 Spic'ula, *a little spike.*
 Spi'na, *thorn.*
 Spines'cens, } *thorny.*
 Spino'sus, }
 Spira'lis, *spiral.*
 Squama'tus, *scaly.*
 Squamo'sus, *scaly.*
 Squarro'sus, *scurfy.*
 Stam'ina, *chives.*
 Stamin'eus flos. *barren flower.*
 Stella'tus, *starry.*
 Ster'ilis, *barren.*
 Stig'ma, *summit.*
 Stim'uli, *stings.*
 Sti'pes, *pillar.*
 Stipita'tus, *standing on a pillar.*
 Stip'ula, *prop.*
 Stolo'nes, *suckers.*
 Stolonif'erus, *having suckers.*
 Stria'tus, *scored.*
 Stric'tus, *very straight.*
 Strigo'sus, *strong lance-shaped bristles.*
 Strob'ilus, *cone.*
 Sty'lus, *shaft.*
 Subdivi'sus, *subdivided.*
 Submer'sus, *growing beneath the surface of the water.*
 Subramo'sus, *a little branched.*
 Subrotun'dus, *circular.*
 Subula'tus, *awl-shaped.*
 Suffrutico'sus, *somewhat woody.*
 Sulca'tus, *furrowed.*
 Superfluus, *superfluous.*
 Superus, *superior.*
 Supradecompositus, *more than doubly compound.*
 Sut'u'ra, *seam.*
 Syngenesia, *class 19, tips united.*
 Tere's, *cylindrical.*
 Tergem'inus, *double twinfork.*

Termina'lis, *terminating.*
 Terna'tus, *threefold.*
 Ternus, *growing by threes.*
 Tetrady'namia, *class 15, four chives longer.*
 Tetrago'nus, *four-cornered.*
 Tetragyn'ia, *four pointals.*
 Tetran'dria, *class 4, four chives.*
 Thy'r'sus, *cluster.*
 Tomento'sus, *downy.*
 Tomen'tum, *down.*
 Toro'sus, *protuberating.*
 Tortilis, *twisted.*
 Transver'sum, *transverse.*
 Trapezifo'r'mis, *irregular square.*
 Trian'dria, *class 3, three chives.*
 Triangula'ris, *triangular.*
 Tricoc'cus, *three seeds in three cells.*
 Tricuspidat'us, *three-pointed.*
 Trigo'nus, *three-edged or cornered.*
 Trigyn'ia, *three pointals.*
 Trinerva'tus, *three-fibred.*
 Triner'vis, *with three fibres.*
 Triparti'tus, *with three divisions.*
 Tripinna'tus, *triply winged.*
 Tripliner'vium, *three-fibred.*
 Tri'queter, *three-square.*
 Triter'na'tus, *triply threefold.*
 Trunca'tus, *lopped.*
 Trun'cus, *trunk.*
 Tuber'culus, *tubercle.*
 Tubero'sus, *tuberous.*
 Tubulo'sus, *tubular.*
 Tu'bus, *tube.*
 Tunica'tus, *coated.*
 Turbina'tus, *turban-shaped.*
 Turgidus, *swollen.*
 Umbel'la, *rundle.*
 Umbel'lula, *Rundlet.*
 Umbilica'tus, *dimpled.*
 Uncina'tus, *hooked.*
 Unda'tus, *waved.*
 Un'guis, *claw.*
 U'nicus, *single.*

Uniflo'rus,

Uniflo'rus, *having but one flower.*
 Unilatera'lis, *growing only from one side.*
 Univerſa'lis, *general.*
 U'rens, *stinging.*
 Utric'ulus, *little bag.*
 Vagi'nans, *sheathing.*
 Val'vula, *valve.*
 Veno'sus, *full of veins.*
 Ventrico'sus, *distended.*
 Verruco'sus, *warty.*
 Verſat'ilis, *vane-like.*

Verticilla'tus, *whorled.*
 Verticil'li, *whorls.*
 Vexill'um, *standard.*
 Villi, *soft hairs.*
 Villo'sus, *woolly.*
 Virga'tus, *rod-shaped.*
 Viſcidus, *clammy.*
 Viſcoſ'itas, *clamminess.*
 Vivip'arus, *viviparous.*
 Volu'bilis, *twining.*
 Vol'va, *ruffle.*





A N

EXPLANATION *of the* PLATES.

P L A T E I I I .

P A R T S *composing a* F L O W E R .

FIG. 1. A back View of a ROSE, to shew the *Empalement*,
or *flower Cup*. *a. a. a. a. a.*, the Segments of
the Cup.

FIG. 2. A figure of the CROWN IMPERIAL, to shew
a. a. a. a. a. a., the Petals.
b. b. b. b. b. b., the Chives.
c. c. c. c. c. c., the Tips.
d., the Seed-bud.
e., the Shaft.
f., the Summit.

FIG. 3. *g.*, a Petal of the CROWN IMPERIAL, separated
from the Flower.
h. i., a Chive. *h.*, the Thread. *i.*, the Tip.
k., a Honey-cup Pore.

FIG. 4. The Seed-vessel of the CROWN IMPERIAL cut
a-cross, to shew the three Cells. During the
existence of the Blossom this was called the
Seed-bud.

FIG. 5. A Flower with the Empalement, the Chives, and the Pointal; but the *Petals* taken away.

a, the Empalement, or Cup.

b. b. b. b. b. b., the Tips of the Chives.

c, the Seed-bud.

d, the Shaft.

e, the Summit.

f, one of the Tips discharging its dust.

FIG. 6. *g. h*, a Chive taken out of a Flower.

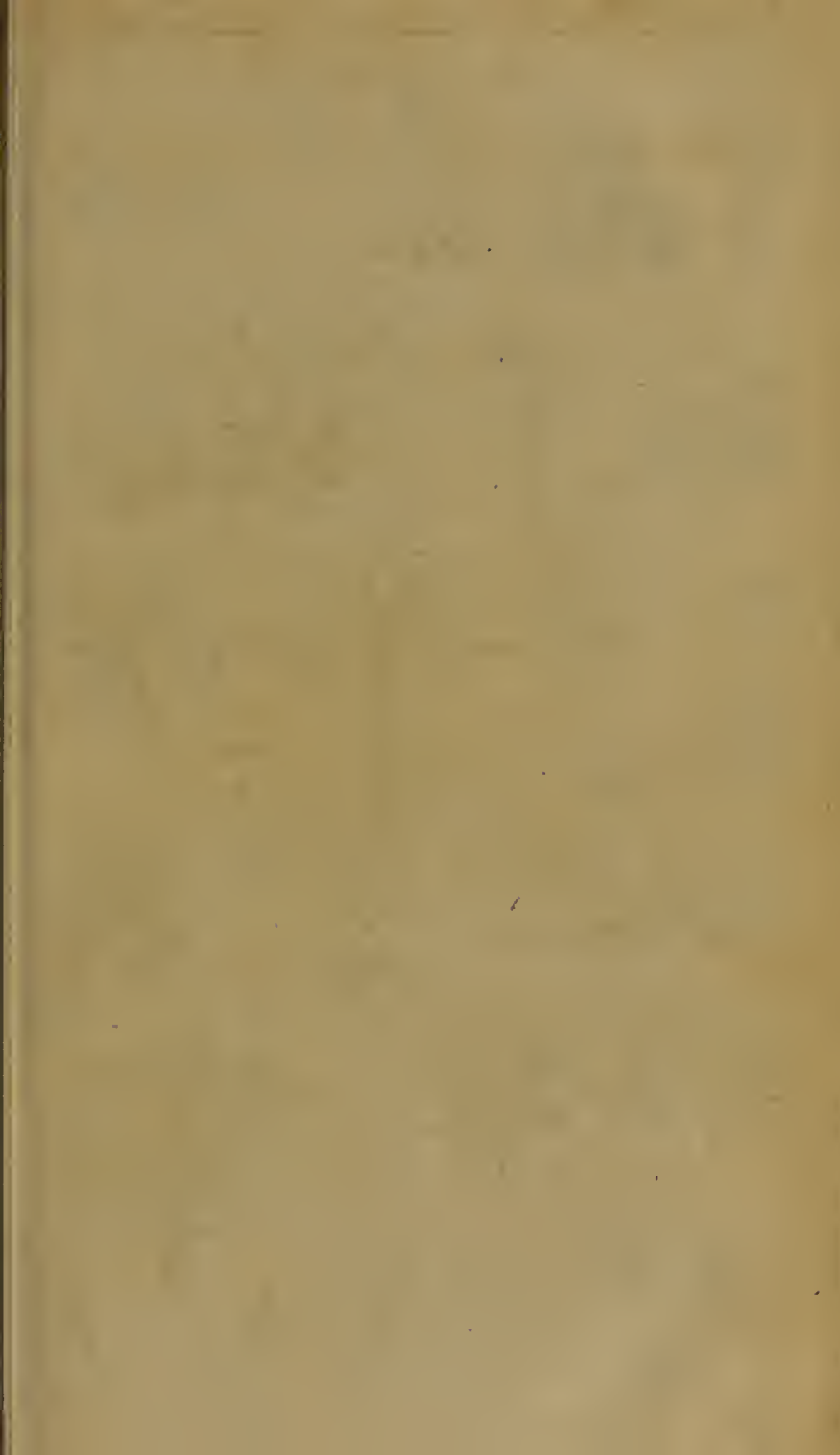
g, the Thread. *h*, the Tip, which, in this instance, is double.

FIG. 7. *i. k. l*, a Pointal taken out of a Flower. *i*, the Seed-bud. *k*, the Shaft. *l*, the Summit.

FIG. 8. *a*, a Particle of Dust greatly magnified. *b*, the vapour escaping from it, which is supposed to pass thro' the Pointal to fertilize the Seed-bud.

FIG. 9. A Daffodil and its sheathing Empalement. *a. a*, the Sheath. *d*, the sheathed Fruit-stalk.

FIG. 10. A Cup, which is the Empalement of a Polyanthus, with five sharp teeth in the rim.





B L O S S O M S.

- FIG. 1. A Blossom of one Petal ; salver-shaped.
a, the Tube. *b. b*, the Border.
- FIG. 2. A bell-shaped Blossom.
- FIG. 3. A tubular bell-shaped Blossom.
- FIG. 4. A Blossom bell-shaped, but distended.
- FIG. 5. A Blossom with six reflected Segments.
- FIG. 6. A back view of a wheel-shaped Blossom, to shew the shortness of the Tube.
- FIG. 7. A funnel-shaped Blossom. *a*, the Tube. *b*, the Border. *c*, the Cup.
- FIG. 8. 9. Gaping Blossoms.
a. a, the Upper Lip.
b. b, the Lower Lip.
c. c, the Tube.
d. d, the Mouth.
- FIG. 10. A gaping Blossom. *a*, the Upper Lip. *b*, the Lower Lip. *c*, the Palate.
- FIG. 11. A cross-shaped Blossom, with the cup taken away, to shew *a. a*, the Claws of the Petals. *b. b. b. b*, the Limbs of the Petals. *c*, the Receptacle.
- FIG. 12. A cross-shaped Blossom, with the Empalement, or Cup. *a. a. a. a*, the Petals. *b*, the Cup, hunched at the Base.
- FIG. 13. 14. Two views of butterfly-shaped Blossoms. *a. a*, the Cups. *b. b*, the Standards. *c. c*, the Wings. *d*, the Keel.
- FIG. 15. The Standard of a butterfly-shaped Blossom separated from the other Petals. *c*. the Claw.
- FIG. 16. One of the Wings of a butterfly-shaped Blossom separated from the other Petals. *m*. the Claw.
- FIG. 17. The Keel, or lowermost petal of a butterfly-shaped Blossom separated from the other Petals.
- FIG. 18. The Cup, Chives, and Pointal, of a butterfly-shaped Blossom, after the Petals are taken away.
a, the Cup. *h*, the Chives. *i*, the Pointal.

COMPOUND FLOWERS.

- FIG. 19. A Flower of DANDELION, as an example of a compound Flower in which all the Florets are strap-shaped.
- FIG. 20. The common Empalement of a compound Flower, composed of upright Scales *d. d.*; and reflected Scales *c. c.*
- FIG. 21. A strap-shaped Floret taken out of a compound Flower. *e*, the Blossom. *f*, the Seed-bud. *g*, the Tips forming a hollow Cylinder, thro' which passes the Pointal, with the two reflected Summits *h*.
- FIG. 22. *k*, the Seed of a compound Flower. *i*, the Pillar supporting the downy Feather, *l*.
- FIG. 23. A naked, dotted Receptacle of a compound Flower. *a*, the Receptacle. *b*, the Empalement reflected.
- FIG. 24. The Flower of a DAISIE, as an example of a *Radiate* compound Flower. *a. a. a. a.*, the strap-shaped Florets in the Circumference. *b*, the tubular Florets in the Centre.
- FIG. 25. The Flower of BURDOCK, as an example of a compound Flower in which all the Florets are tubular. *a*, the scaly tiled Empalement. *b*, one of the Scales with its hooked Point. *c. c.* the tubular Florets.
- FIG. 26. One of the tubular Florets separated from the rest. *d*, the Blossom. *c*, the Seed-bud. *f*, the Pointal.
- FIG. 27. One of the seeds. *d*, the pyramidal seed, crowned by the short Feather *h*.

THE LIFE OF

GEORGE WASHINGTON

BY

JOHN ADAMS

OF THE MASSACHUSETTS

IN TWO VOLUMES

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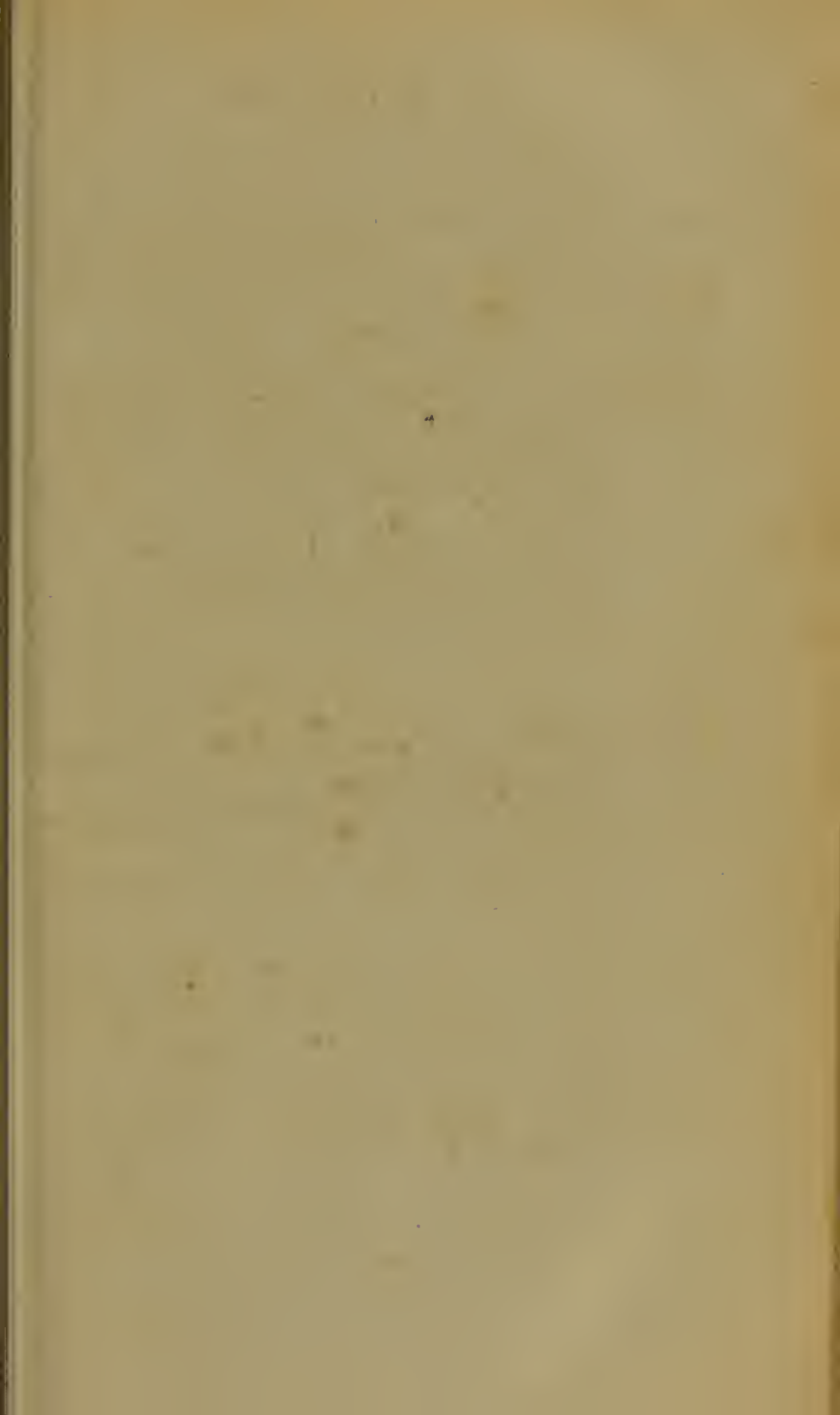
H O N E Y - C U P S.

- FIG. 1. The Blossom of a Daffodil, with the bell-shaped Honey-cup *a*.
- FIG. 2. The Blossom of the PARNASSIA to shew the Honey-cups *a. a. a. a. a.* which are little globes supported upon Pillars.
- FIG. 3. *a. a*, The Horned Honey-cups of the WOLFSBANE. *b. b*, the Foot-stalks that support them.
- FIG. 4. *a*. The horn-shaped Honey-cup of the LARKSPUR. *b. c. d. e. f*, the Petals.

S E E D - V E S S E L S.

- FIG. 5. *c. c*, The globular Capsule of a POPPY. *a. a*, the holes through which the Seeds escape. *b*, the radiated summit.
- FIG. 6. A Capsule with three Valves, opening at the top. *a. a. a*, the Valves.
- FIG. 7. A Capsule cut open length-ways, to shew the Receptacle, with the Seeds fixed to it.
- FIG. 8. A Capsule opening by holes at the sides. *a. a*, holes through which the Seeds escape.
- FIG. 9. A Capsule that opens like a snuff box, or as if it was cut round. *a*, the Capsule entire. *b*, the Capsule open. *c*, the Receptacle as it appears after the Seeds are removed.
- FIG. 10. An inversely heart-shaped Pouch, notched at the end.
- FIG. 11. A circular Pouch notched at the end.
- FIG. 12. A Pouch opened a little to shew *a. a*, the Valves. *b. b*, the Partition between the Valves.
- FIG. 13. A Capsule with two boat-shaped Valves, and one cell. *a. a*, the Valves opening length-ways.

- FIG. 14. A Capsule cut open horizontally to shew *c. c. c. c.*, the Valves. *b. b. b. b.*, the Partitions. *d*, the Column in the Centre to which the Partitions are connected. *a. a. a. a.*, the Receptacles and Seeds.
- FIG. 15. Seeds of Geranium, with a long Bill. *b*, the Seeds. *a*, the Bill.
- FIG. 16. A Shell, or Seed-vessel, of two Valves, in which the Seeds are fixed to the upper Seam only. *a. b.*, the Valves.
- FIG. 17. A Pod, or Seed-vessel of two Valves, in which the Seeds are fixed to the two Seams alternately
a. b., the Valves. *d. d. d. d. c. c. c.*, the Seeds.
- FIG. 18. A Cone, cut through length-ways, to shew the Scales and the Seeds.
- FIG. 19. A Berry cut across to shew *a. a.*, the Seeds. *b. b.*, the Pulp. *c. c.*, the Coat.
- FIG. 20. A fleshy Capsule, or Apple, cut across to shew *b. b. b. b. b.*, the five Cells.
- FIG. 21. A pulpy Seed-vessel cut across. *a. a.*, the pulpy part. *b. b.*, the Nut or Stone.



P L A T E VI.

S E E D S.

FIG. 1. The Seed-vessel of the Spindle-tree, to shew the Seed-coat. *a. a.*, the Valves of the Capsule. *b.*, a Seed. *c. c.*, the Seed-coat opened to shew the Seed.

FIG. 2. A Seed with its Feather.

a., a hairy Feather. *b.*, a downy Feather.

d., the Pillar supporting the Feather. *c.*, the Seed.

FIG. 3. The Seed of a Bean split in two, after being soaked a little while in water, to shew

a. a., the Seed-lobes.

b., the Heart.

c., the descending part of the Heart.

d., the ascending part of the Heart.

e., the Eye.

F R U I T - S T A L K S.

FIG. 4. A Stalk. It supports the Flowers, and springs directly from the Root.

FIG. 5. A Spike. *a. b. c. d.*, the Spikelets, or little Spikes.

FIG. 6. A Panicle.

FIG. 7. A broad-topped Spike. *a. a. a. a. a. a.*, the little Fruit-stalks.

FIG. 8. A Bunch.

FIG. 9. A Rundle. *b. b. b. b.*, Rundlets. *c. c.*, the General Fence. *d. d. d. d.*, the Partial Fence. *e. e. e. e.*, the Spokes of the Rundle.

FIG. 10. A Tuft.

FIG. 11. Whorls of Flowers. *a. a. a.*, the Whorls.

FIG. 12. A Catkin.



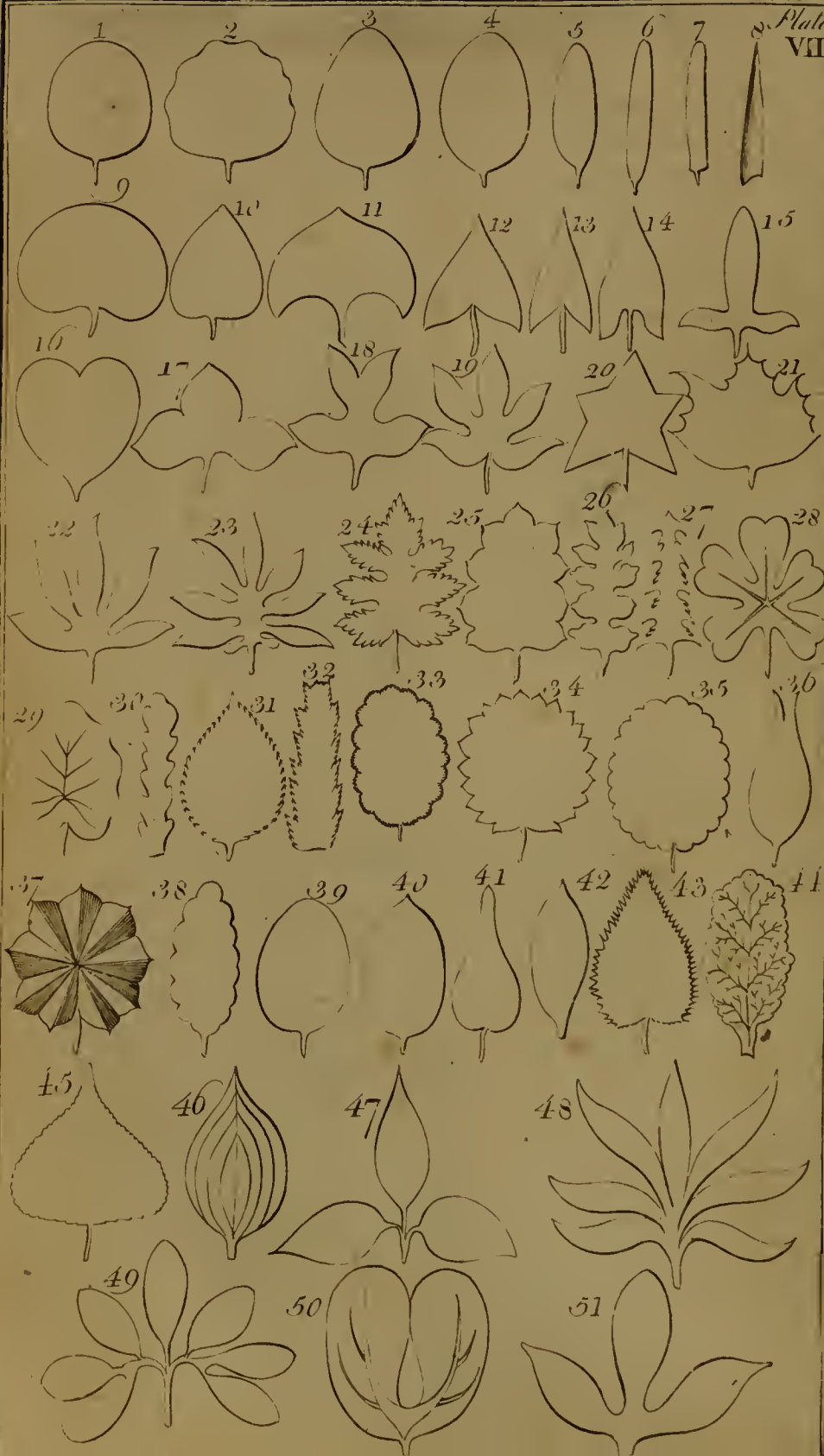
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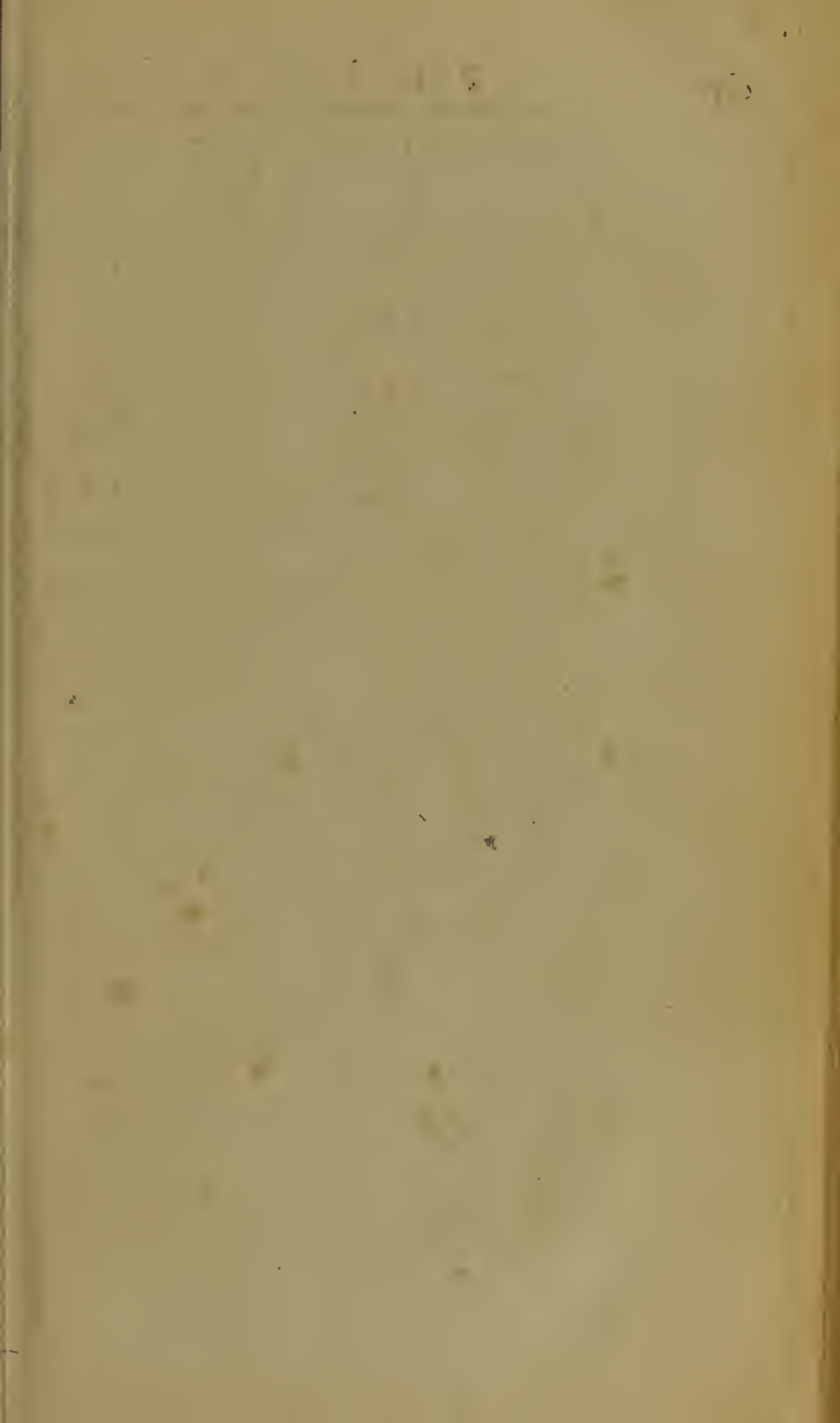
FIG.

- 1 Round.
- 2 Circular.
- 3 Egg-shaped.
- 4 Oval.
- 5 Oblong.
- 6 Spear-shaped.
- 7 Strap-shaped.
- 8 Awl-shaped.
- 9 Kidney-shaped.
- 10 Heart-shaped.
- 11 Crescent-shaped.
- 12 Triangular.
- 13 Arrow-shaped.
- 14 Between heart and arrow shaped
- 15 Halberd-shaped.
- 16 Notched at the end.
- 17 Consisting of 3 Lobes.
- 18 Bitten.
- 19 Gashed.
- 20 With five angles.
- 21 Gnawed.
- 22 Hand-shaped.
- 23 With winged Clefts.
- 24 Jagged.
- 25 Indented.
- 26 Toothed and indented.

FIG.

- 27 Barbed.
- 28 Divided.
- 29 Serpentine at the edge.
- 30 Toothed.
- 31 Serrated.
- 32 Doubly serrated.
- 33 Doubly scalloped.
- 34 Sharply scalloped.
- 35 Bluntly scalloped.
- 36 Sharply notched at the end.
- 37 Plaited.
- 38 Scalloped.
- 39 Blunt.
- 40 Sharp.
- 41 Tapering to a point.
- 42 Blunt but ending in a point.
- 43 Fringed.
- 44 Venous, or full of veins.
- 45 Triangularly spear-shaped.
- 46 Stringy.
- 47 Growing by threes upon leaf-stalks.
- 48 Fingered.
- 49 Shaped like a bird's-foot.
- 50 In pairs.
- 51 Three-fold.





L E A V E S.

FIG.

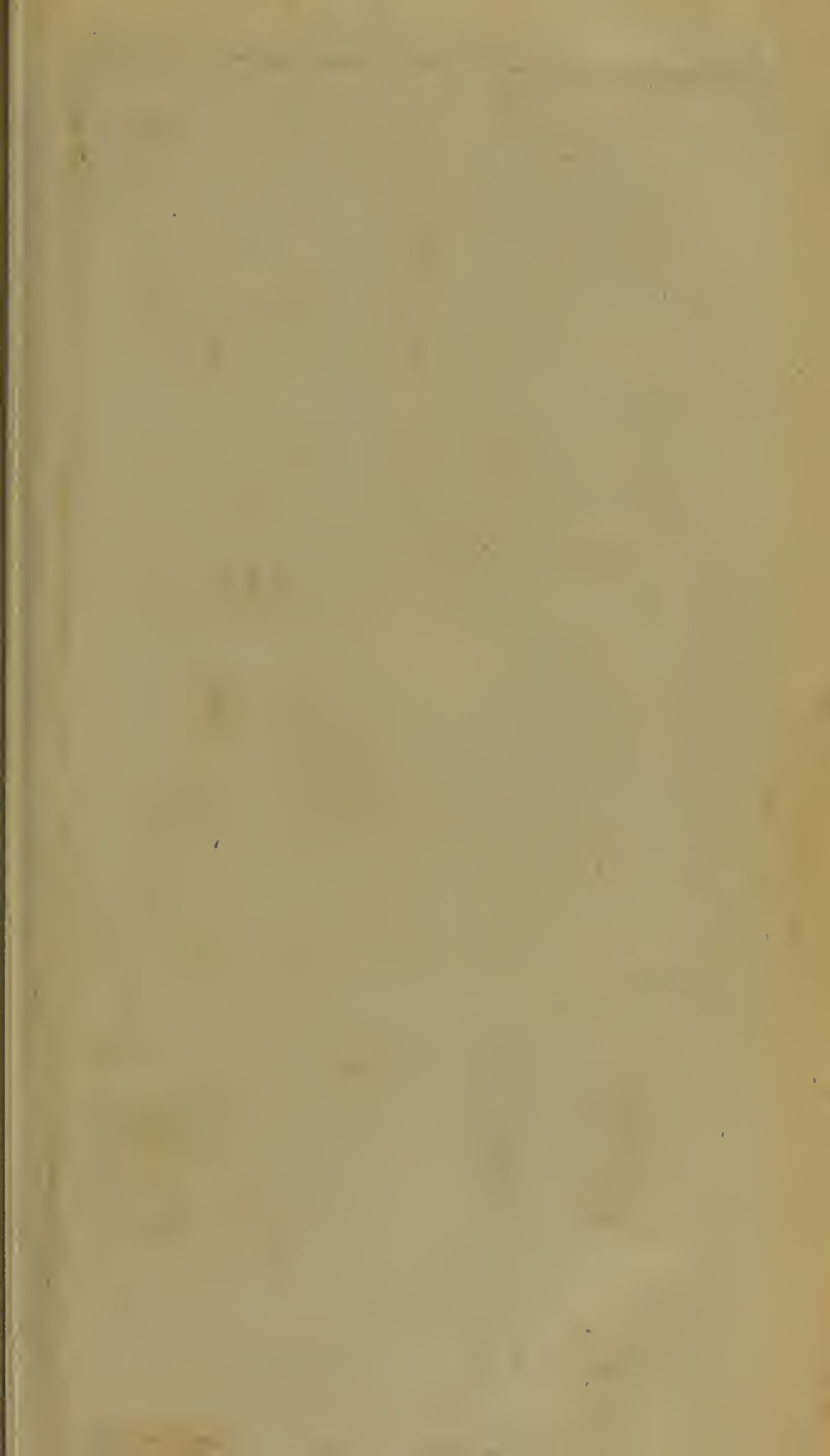
- 52 Winged, with an odd leaflet at the end.
- 53 Abruptly winged.
- 54 Winged, with the leaflets alternate.
- 55 Interruptedly winged.
- 56 Doubly winged
- 57 Doubly three-fold.
- 58 Winged, and terminated by a tendril.
- 59 Triply three-fold.
- 60 Triply winged, without an odd leaflet at the end.

FIG.

- 61 Triply winged, with odd leaflet at the end.
- 62 Lyre-shaped.
- 63 Lopped at the end.
- 64 Spatula-shaped.
- 65 Wedge-shaped.
- 66 Waved at the edge.
- 67 Curled
- 68 Cylindrical.
- 69 Inversely heart shaped

Plate VIII





Disposition and Direction of LEAVES.

FIG. 1. Leaves in cross pairs.

FIG. 2. Tiled Leaves.

FIG. 3. *a*, a jointed Leaf.

b. b, Starry Leaves.

c. c, Leaves growing by fours.

d. d. d. d. d, Leaves alternate. In fig. 5. all the Leaves are opposite.

e, Chaffy Leaves.

f, Leaves in a bundle.

FIG. 4. *a*, A Leaf with a central Leaf-stalk.

b, a Leaf with its Leaf-stalk, *c*.

d, a sitting Leaf.

e, a Leaf running along the Stem.

f, a Leaf embracing the Stem.

g, a perforated Leaf.

h. h, Twin Leaves.

i, a Leaf sheathing the Stem.

FIG. 5. *a. a*, Leaves bent inwards.

b. b, Leaves upright.

c. c, Leaves expanding.

d. d, Leaves horizontal.

e. e, Leaves curved.

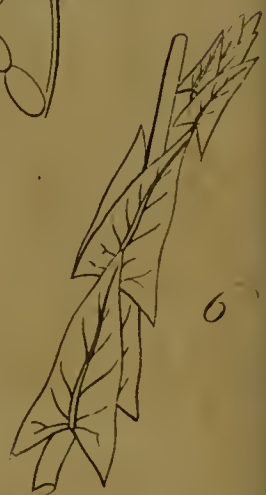
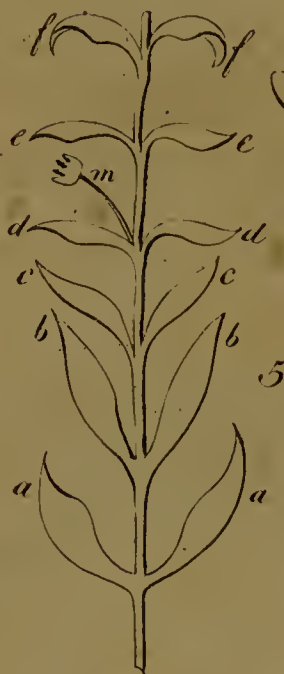
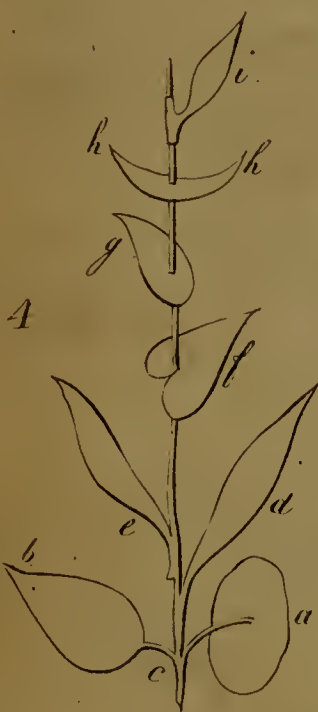
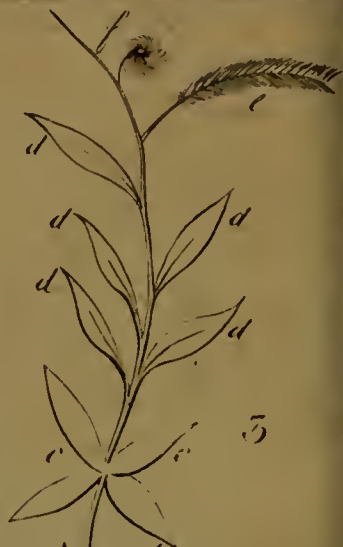
f. f, Leaves rolled back.

m, a Fruit-stalk rising from the base of the Leaf.

FIG. 6. Leaves contiguous to the Stem.

FIG. 7. Root-leaves. *a*, the root. *b. b. b*, the leaves rising immediately out of it, without the intervention of any Stem.

FIG. 8. *a. a*, Floral Leaves; different from *b. b*. the other Leaves of the plant. *c*, a Fruit-stalk.



W E A P O N S.

FIG. 1. *a. a. a. a.*, Simple thorns.

b. b. b., A triple thorn.

FIG. 2. *a. a.*, Simple Prickles.

b. b., Forked or triple Prickles.

S T E M S, &c.

FIG. 3. A jointed Straw. (*a. a. a.*) The Joints.

FIG. 4. A forked Stem.

FIG. 5. A twining Stem.

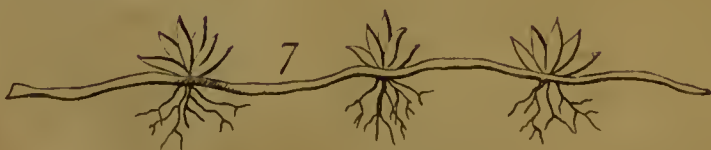
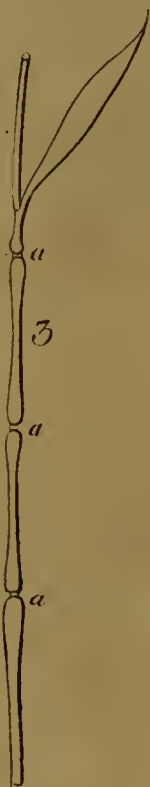
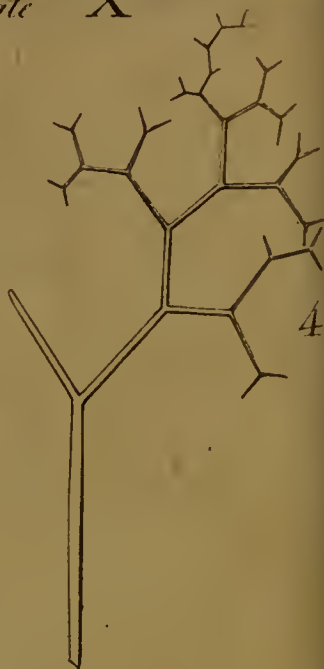
FIG. 6. *a. a.*, A Tendril.

b. b., Props.

c. c., Concave Glands.

FIG. 7. A creeping Root.

FIG. 8. A creeping Stem.



Vol. III.

i

P L A T E XI.

FIG. 1. *a. a. a. a.*, Glands supported upon Foot-stalks.

R O O T S.

FIG. 2. A coated bulbous Root, cut a-cross, to shew the Coats which compose it.

FIG. 3. A solid bulbous Root.

FIG. 4. A scaly bulbous Root.

FIG. 5. A branching Root.

FIG. 6. A spindle-shaped Root.

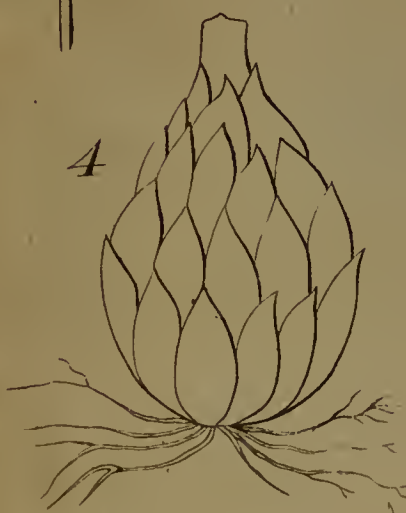
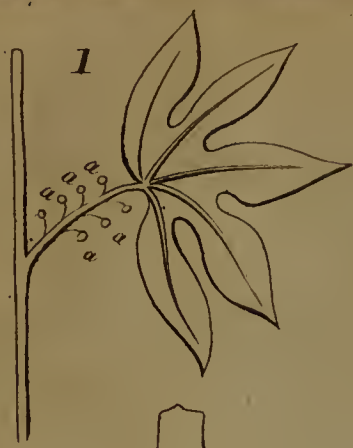
FIG. 7. A tuberous Root.

I N S T R U M E N T S.

FIG. 8. Two Dissecting Needles, with ivory handles, belonging to the Botanical Microscope.

FIG. 9. A pair of Spring Pliers for dissection, belonging to the Botanical Microscope.

P L A T E

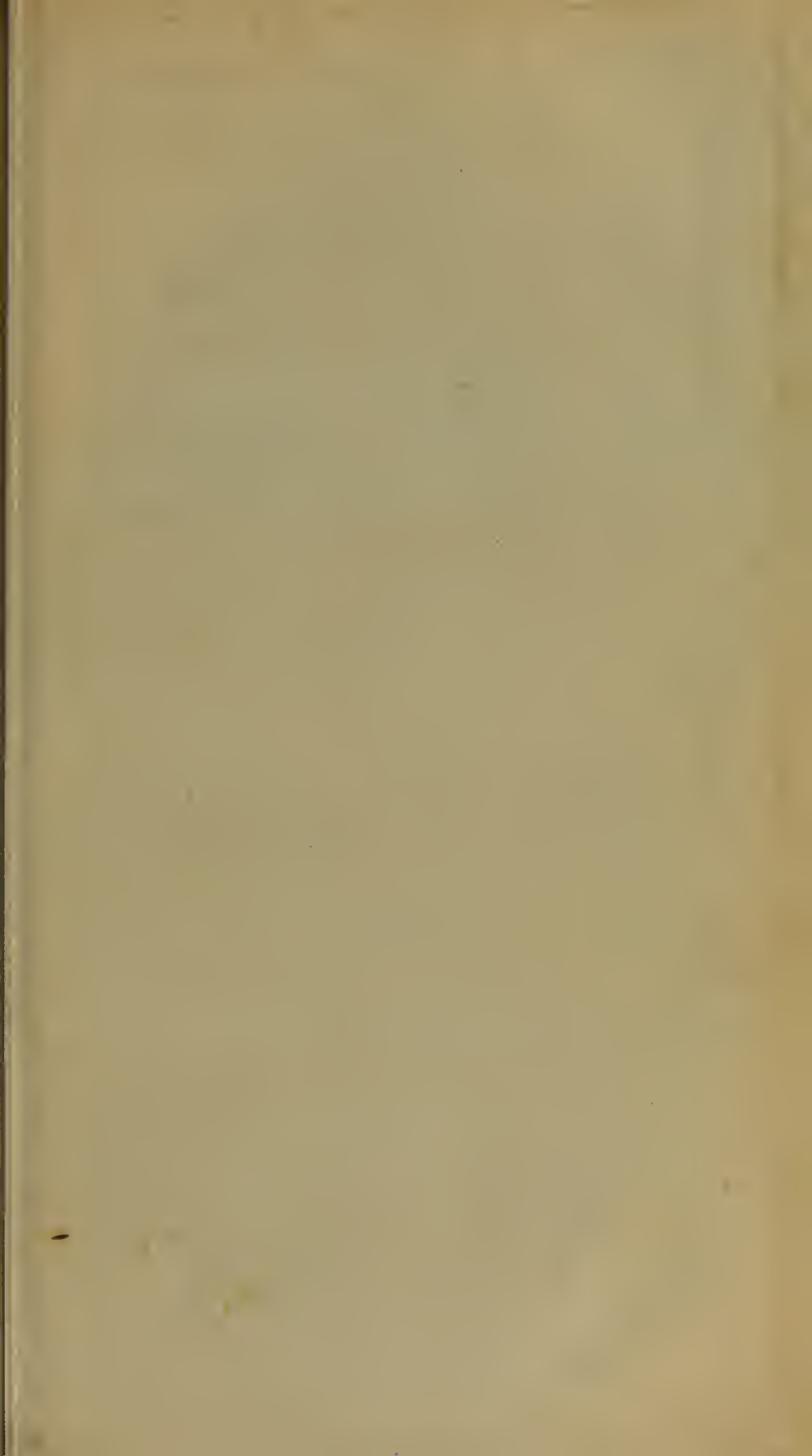


HORTUS SIC'CUS or HERBA'R'IUM.

A Section of a Cabinet for the preservation of dried specimens of plants. The numbers denote the drawers appropriated to the different Classes. The size of the drawers, is proportioned to the number of plants in each Class. They are calculated to contain specimens of all the British Vegetables.

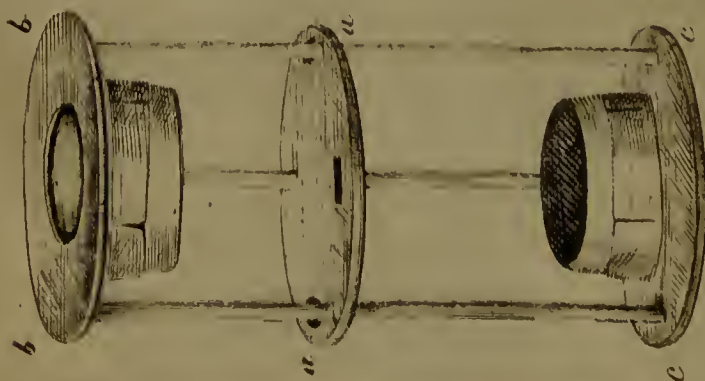
B O T A N I C A L M I C R O S C O P E.

The Microscope figured in this plate having been found to occupy too much space in the pocket, to stand too unsteady when in use, and to have the handles of the instruments too short; another instrument is now sold by the publisher, and may be had from the different book-fellers, price 10s. 6d. in which all these inconveniencies are obviated. The separate glass in the ivory cell is intended to be used as a hand magnifier. The fixed glass at the top of the instrument is to be turned round until its focus be properly adjusted to the object laid upon the stage, and a distinct vision obtained; and then if dissection is requisite, it may be done with great steadiness and exactness, by holding one of the dissecting instruments in each hand, resting the elbows upon the table, and looking through the microscope at the time that the dissection is performed.



I	II	XVII
	III	
	IV	
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	VIII	
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VII IX	XII	XIX
	XIII	
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		XXIV

Fig. 2.



A D D I T I O N S

T O T H E

T W O F I R S T V O L U M E S.

A D D I T I O N S, &c.

Page 2. *HIPPURIS vulgaris*. Thread on the side of the summit of the seed-bud. Shaft on the centre of the summit of the seed-bud. Seed-bud beneath. ST. from the figure in the Fl. Lond.

Curt. No. 48.—Giseke 32.—Fl. dan. 87.—Dod. 113. 2, repr. in Lob. ic. i. 792. 2, and Ger. em. 1114. 6, with the spike of an *Equisetum* added to the left hand stem.—J. B. iii. 732, figure on the left hand the best.—Ger. 957. 6, misprinted 953, cop. in G. B. th. 243. 4.—Park. 1200. 4, cop. in Brit. herb. 81.—Seguier. i. 2?

— 3. *SALICORNIA herbacea*. Line 1, read, Herbaceous, open. Joints flattened, between nicked and cloven at the end.

Line 3. After *auct.* 598, add, *Bast.* ii. 10. 3, a full grown plant; (a) a portion of a branch, B. D. the chive, C. dust magnified; 1. a plant a fortnight old; 2. a young plant beginning to throw out lateral branches; 4. a branch and a section of it when the seed is ripe, exhibiting the seed-vessels lying in the substance of the leaves; C. the seed-vessel, D. the seed, and E. the empty seed-vessel.—Matth.

Line 4. After *Ger.* read *em.* 535. 1, and cop. in *Brit herb.* 83.—*Pet.* &c.

Line 6. Before *Spike*, read, Widely spreading, scarcely a palm long. LINN.—

Line 6. After *Flowers*, read, in threes, close together, on each side of every joint. Chive 1. BASTER in *Reich. syst. plant.* but I find no such description of the flowers in the place there cited. ST.

Line 8. After *blunt*, add, *GER. prov.*

— 4. *CALLITRICHE verna*, var. 3. *Ger. em.* 614. 12. cop. in *Park.* 1260. 5?

— 6. line 6, add, *Schœnus albus*. *Schœnus Mariscus*. ST.

— 7. *LIGUSTRUM vulgare*. *Curt.* iv. 51 before *Mill.*

— 9. *VERONICA hybrida*. Omphrehead, a steep rock at Cartmell Wells, plentifully. Mr. HALL.

ADDITIONS TO THE

- Page 12. VERONICA *Anagallis*. Curt. v. 56 before Ger.
 — 13. VERONICA *scutellata*. Curt. v. 56.
 — 15. line 5 from the bottom, add, *Leaves* cut into winged clefts. Mr. WOODWARD.
 — 25. ANTHOXANTHUM *odoratum*. Mill. ill. after Schreb. *Shafts* appearing before the *chives*, as in *Carex* and *Plantago*. Scop.—*Bloss.* *valves* a long oval, blunt. *Honeycup* smooth; one of the leaves egg-shaped, the other elliptical. HALL. ST.—*Empal.* *valves* sharp-pointed. *Bloss.* the *awn* from the valve, which is next to the greater valve of the empalement, rising even with the empal. and sometimes a little beyond it. SCHEUCH. ST.—I have, at p. 26, conjectured its scent to proceed from the yellow dots on the valves of the empalement, but, on drying the spikes and straws separately, I found that the straws afforded the scent, while the spikes treated exactly in the same way afforded no more scent than *Bromus secalinus*, *Cynofurus cristatus*, or *Lolium perenne*. ST.
 — 35. line 10 from the bottom, before Riv. read, Curt. iv. 47.—
 Line 7 from the bottom, before Riv. read, Curt. iv. 47.—
 After line 11 from the bottom, add, *Plant with chives*, but *pointals imperfect*. In the garden of the University of Lund, in Sweden, it produced perfect seeds, but whether from an intermixture of hermaphrodite, or female flowers, as has been observed in the Hemp and Spinach, was not ascertained. RETZ. obs. i. p. 10.
 — 37. VALERIANA *Locusta*. Curt. v. 54 before Dod.
 CROCUS *sativus* α. Mill. ill. *Crocus sativus* β. Jacq. austr. app. 36.
 — 40. IRIS *Xiphium*. Line the last, after Ger. em. 102. b. add, and Park. 257. 8, &c. &c.
 — 41. SCHÆNUS. After Obf. par. 2, add, And in *Scirpus palustris* the two or three lowermost are without chives and pointal. ST.
 — 42. line 14, add, *Chives* 2. SCHEUCH.
 SCHÆNUS *ferrugineus*. (H. ox. viii. 12. 40, is referred by Mr. Hudson to *Juncus triglumis*.)
 — 43. SCHÆNUS *compressus*. *Straws* from below the middle generally leafy, smooth, just below the spike rough. LEERS, ST.
 — 44. line 14, add, *Chives* 2, very rarely 3, opposite, upright, only half as long as the pointals. ST.
 — 46. SCIRPUS *palustris*. After the character, add, LINN.
 — Summits 2. ST.

- ge 46. *SCIRPUS palustris* α . *Straws* inclosed below with sheaths. *Sheaths* generally 2, lopped, the lowermost extending upwards, one to one and an half inch, the uppermost longer. SCHEUCH. ST.—*Sheaths* leafless. *Spike* egg-oblong, pointed. *Scales*, the two lowermost opposite, blunter, broader, and without chives and pointal. *Shaft* always cloven into two, not three. *Seed* surrounded at the base with 4 white bristles shorter than the empalement. LEERS, ST.—*Straws* separated at the base by taper-pointed scales. *Sheaths* lopped obliquely, a brown dot just below the point, the uppermost rising from 3 to 5 inches above the root. *Empal. scales* egg-oblong, generally the three lowermost roundish, and without chives and pointal. *Seed-bud* oblong, flattened. *Shaft* with a fleshy, egg-shaped, flattened base, fixed on the point of the seed-bud, and nearly as large; shrivelling as the seed-bud enlarges. ST.—In ponds it often covers considerable spots of ground. ST.
- 46. *SCIRPUS palustris* β . *Pointal* as in α . *Scales*, only the two lowermost without chives and pointal. ST.
- 47. *SCIRPUS cæspitosus*. *Shaft* just sensibly larger at the base. *Summits* 3. Its structure approaches rather to that of the *Schoenus*. ST.
- SCIRPUS acicularis*. *Shaft* just sensibly larger at the base. *Summits* 3. ST.
- 49. *SCIRPUS setaceus*. Add to the specific character, *Spikes* 1 to 4. ST.
- 50. *SCIRPUS maritimus*. *Curt. No. 48 before C. B.*
- 59. *ALOPECURUS pratensis*. *Curt. iv. 50.*
- ALOPECURUS bulbosus*. References to figures, after *C. B. th. 20*, insert, *cop. in Park. 1176. 2.*
- 60. *ALOPECURUS geniculatus* α . *Curt. v. 57.—Fl. dan. &c.*
- 62. *PHLEUM arenarium*. In sandy places on the sea shore. [Near the sea side, Yarmouth. Mr. Woodw.]
A. July. Aug.
- 78. line 13, add, This is certainly the *A. montana* at a greater age, and must certainly be the same plant. WIGGERS.
- 81. *MELICA uniflora*. *Curt. iv. 5 before H. ex.*
- 82. *MELICA cærulea*. Flourishes in the neighbourhood of the copper works at Pary's mountain, in Anglesea, while almost every other vegetetable, even Lichens, are injured or destroyed. *PENN. wales ii. 265.*
- 85. *POA aquatica*. *Curt. v. 56 before H. ex.*

Page 88. line 24, after *Leers* 6. 1. insert *Anders*, (called *Poa compressa*.)

— 89. *POA maritima*. *Fl. dan.* 251, a good representation of it. Mr. VELLE, ST.—A specimen of Mr. Velley's gathered at King's Weston, near Bristol, accords with mine which I collected in a journey along the sea coast, and I believe at King's Weston. In mine the panicle is compact, as described by Mr. Hudson; in Mr. Velley's the largest of the branches from each joint retrofracted. ST.

— 110. *BROMUS giganteus*. *Curt.* v. 58.

— 113. *AVENA fatua*. References, line 1, after *Leers*, &c. add, *Mill. ill.*—*H. ox.*

— 118. *ARUNDO arenaria*. Newborough, in Anglesea, subsists chiefly by manufacturing it into mats and ropes. Queen Elizabeth, on account of its preventing the winds from driving the sand over the adjoining fields, prohibited the extirpation of it. *PENN. wales* ii. 226.

— 118. *ROTTBOLLIA incurvata*. Stems branched. Spike cylindrical, not thicker than the stem, whence it is not readily observable, unless when in flower. RAY, Mr. WOODWARD.—Leaves short, firm. Flowering stems ascending, below whitish, cylindrical and smooth. Spike green. Florets, one to each joint, alternate. Empal. valves strap-spear-shaped, ending in a stiff point, the point lying in a notch of the joint above, stiff, green, furrowed without, white and shining within, one expanding when the dust is ripe. Blossom nearly as long as the empalement. Threads very short. Tips long. Mr. WOODWARD.

Near Yarmouth. Mr. CROWE.

— 141. line 7. Read, with 5 bristles, as, &c.

— 153. *GALIUM tricornis*. Leaves rough at the edge with prickles pointing backwards; rib rough with similar, but smaller prickles. Fruit-stalks generally single. Pedicels with often one leaf at the base. Flowers, sometimes all 3, not unfrequently 2, but most commonly only 1 fertile. Mr. WOOD.

Plentifully in a limestone soil in the corn fields about Monk Tryston, between Ferrybridge and Selby, and near Weatherby, Yorkshire. Mr. WOOD.

— 156. *GALIUM boreale*. Fruit rough with hairs; hairs upright, not hooked, nor adhering; LINN.—slightly hooked at the end. ST.—Fruit appearing to the naked eye as covered with a white downy substance. Mr.

WOOD,

WOOD, ST.—*Bluff*. when fresh, of a beautiful white, but, when dried, turning to a dirty yellow, though gathered in the finest day. Mr. GRIFFITH.

[Rocks about the Strid, near Bolton Abbey. Mr. WOOD.]

158. *ASPERULA odorata*. Woods in Herts. Mr. WOODW. Near Armingdale Wood by Norwich. Mr. CROWE.
159. *SHERARDIA arvensis*. Curt. v. 53 before *Fl. dan.*
163. *ILEX Aquifolium*. References. After *Hunt. vel.* 383, add, i. p. 262. ed. II. and after *Walc.* add *Munt.* 164. 38.—
170. *SAGINA procumbens*. References, line 2. *Ger. em.* 567. 5, add, is *Scleranthus perennis*.
172. *POTAMOGETON natans*. 1, References. After *Trag.* 688, add, *Mill. ill.*
175. *POTAMOGETON pectinatum*. References. *Lob. ic.* i. 790, repr. in *Ger. em.* &c.
- POTAMOGETON setaceum*. Leaves spear-shaped, opposite, taper-pointed.
In peaty ditches in Lancashire. P. July. Aug.
176. *POTAMOGETON pusillum*. Whole plant extremely slender. Stem much branched, scored. Leaves very narrow, pointed, extremely expanding at the base, sometimes almost bent back. Leaf-scales broader than the leaves, short, membranaceous. Spike short. Flowers on fruit-stalks. Mr. WOODWARD.
183. *MYOSOTIS scorpioides*. *Walc.* 5.—
δ. Myosotis palustris. Curt. cat. n. 330.
196. line 24, add, [Fen Banks, Lincolnsh. and Cambridgeh. intermixed with *Symphytum officinale*. Mr. WOODW.]
198. *ASPERUGO procumbens*. In and near the church yard, Newmarket. Mr. WOODWARD.
- LYCOPSIS arvensis*. Curt. v. 57 before *Fuchs*.
200. *ECHIU M italicum*. *Jacq. aust. v. app.* 16 before *Dod.*
209. *LYSIMACHIA nemorum*. Curt. v. 56.
213. *CONVOLVULUS sepium*. *Walc.* 5.
218. *CAMPANULA latifolia*. Erase *Fl. dan.* 85, two flowers and leaf good, and insert *Fl. dan.* 782.—
Not unfrequent in the clayey parts of Suffolk. Mr. WOODWARD.
249. After line 18, add, A horse ate once of two bundles offered at different times, but, though he swallowed what he had taken into his mouth, he did not eat any more of the same bundle. ST.

ADDITIONS TO THE

Page 258. *ULMUS campestris*. References. After *Hunt. evol.* add, i. p. 114. ed. II.

— 259. line 3 from the bottom, after *Nat. displ.* insert *Lob. obs.* ii. 189. 2, repr. in *Ger. &c.*

— 263. *GENTIANA campestris*. In great plenty in a boggy field adjoining to Horsforth Beck, four miles from Leeds. Mr. WOOD.

— 268. *BUPLEURUM tenuissimum*. Boggy ground at the farther end of St. Vincent's Rock, near Cook's Folly. Dr. BROUGHTON.

— 281. *SELINUM palustre*. Root in one plant nearly simple. Mr. WOOD.

In great plenty in low wet moors, with *Iris Pseud-Acorus*, near Whitgift, Yorkshire, four miles from the confluence of the Ouse and Trent. Mr. WOOD.

— 283. *ATHAMANTA Libanotis*. *Apium petræum seu montanum album*. Bauh. hist. III. b. 105. R. syn. 218. Mr. RELHAN.—*Athamanta Libanotis*. Hudf. ed. i.—*A. Oreoselinum*. Hudf. ed. ii. Mr. WOODWARD.

Gogmagog Hills, Cambridgeshire. RAY.—Found some years since by Mr. Davies of Trinity College on the hills near Lord Godolphin's. Mr. WOODWARD.

— 288. *Heracleum Sphondyl. β.* In the woods and other places about Hayes, near Oswestry, as common as *α*. Seeds gathered Oct. 4, 1770, were sown Jan. 2, 1771, and produced plants which flowered in 1772, and they or many of their progeny now occupy the same spot in Jan. 1789. It seems to be more than a variety. Mr. WARING.

— 291. *SIUM latifolium*. References, line 2, after repr. in, insert, *Lob. obs.* 113. 1; ic. i. 208. 1,

dwarf *SIUM repens*. Stem creeping. Leaflets roundish, toothed and angular; LINN.—rather between cat and serrated. ST.

Jacq. fl. iii. 260.

Smaller in all its parts than *S. nodiflorum*. Leaflets, the terminating one deeply divided into 3 lobes. Roots more numerous and frequent than those which sometimes shoot out from the lower part of the stem of *S. nodiflorum*, by means of which it soon covers the spot where it is planted with a numerous offspring; so that it is difficult, as Jacquin observes, to discover the parent root. Leaflets, the terminating one deeply divided into 3 lobes. Dr. J. SITHARP.—Randles on fruit-stalks,

fruit-stalks, opposite the leaves. *Leaflets* roundish egg-shaped, unequally serrated; serratures bluntish, the lower edge generally deeply cut also in one place. ST.

[Found by Dr. J. SIBTHORP in moist ground called Cowley Bottom, near Oxford.] P. July.

303. After the last line. *insert*, Llangollen monastery, Denbighshire, and White Ladies near Boscobel, Shropsh. Mr. DICKENSON.

305. SCANDIX *Anthriscus*. A horse eat it. ST.

307. CHÆROPHYLLUM *sylvestre*. Two horses in a stable ate a quantity of it. — A cow left it in a pasture of mine. ST.

311. ANETHUM *Foeniculum*. Mill. ill before Sheldr.

322. STAPHYLEA *pinnata*. Gisek. 56.—Matth.

May and June.

325. PARNASSIA *palustris*. References. After Ludw. 110, *insert*, Mill. ill.—

328. LINUM *usitatissimum*. References. Curt. v. 55.—Ludw.

330. LINUM *catharticum*. Fl. dan. 851.

337. line 6, *read*, though 6 in number.

343. ALLIUM *arenarium*. Stems sometimes 5 feet high. *Leaf-sheaths* strongly keeled. Mr. WOOD.

Troutbeck-holm by Great Strickland. R. syn.—

[Plentifully about Thorp Arch, Yorksh. Mr. WOOD.]

346. After line 24, *insert*, 2. White-flowered.

Plentifully in a meadow on the right of the road leading from Wolsley Bridge to Stafford, about 200 yards from the Bridge. 7th May, 1787. WITH.

362. JUNCUS *articulatus*, var. 4. Fl. dan. 817.—H. ox. &c.

363. JUNCUS *triglumis*. Specific character, *add*, LINN.

—with from 2 to 4 flowers. HALL.—and 5. Mr. GRIFFITH, ST.

366. line 22, *after force*, *insert*, Bot. Arr. ed. I.

367. line 26, *after Ger. em.* 566. 3; *insert*, *cop. in Park.* 1680. 6.—

370. RUMEX *crispus*. A horse refused it. ST.

371. RANUNCULUS *Flammula*. Walc. 5.

373. RUMEX *obtusifolius*. Horses will eat it in the stable. ST.

375. RUMEX *digynus*. [and May. Mr. GRIFFITH.]

380. line 13, *after Shropshire*, *add*, in the meadow between the church and the medicinal spring at Cheltenham.

381. ALISMA *Plantago*. References. Curt. v. 54. — Fl. dan. After Lob. obs. 160. 1, *insert*, ic. i. 301. 1, Ger.

Page

- Page 381. *ALISMA Damasonium*. After repr. in. insert, ic. i. 301. 1, Ger.
ALISMA natans. [and June. Mr. GRIFFITH.]
- 382. *ALISMA Ranunculeides*. After J. B. iii. 788, insert, Lob. ic. i. 300. 2, repr. in Ger.
- 413. *POLYGONUM aviculare*. Walc. 5.
Convolvulus. Walc. 5.
- 417. *ADOXA Moschatellina*. References. After Ger. 933. 10, insert, Park. 62. 1. —
- 424. *MONOTROPA Hypopithys*. References. After Fl. dan. 232, insert, Plot. oxf. 9. 6, at p. 146, cop. in H. ox. xii. 16. 13, and 20. b. in flower, 20. a. in fruit.
- 427. *ARBUTUS Unedo*. References. After Hunt. evel. 373, add, ii. p. 81. ed. II.—Mill. &c.
- 431. *SAXIFRAGA nivalis*. References. After Ray 16. 1, add, at p. 358, from a garden specimen,
- 432. *SAXIFRAGA nivalis*. [May to Aug. I have seen the same plant flower thrice in one summer. Mr. GRIFFITH.]
SAXIFRAGA oppositifolia. [April to June. Mr. GRIFFITH.]
- 438. *SAPONARIA officinalis*. References. At the end, add, (Ludw. 170, is *Lychnis dioica rubra*.)
- 443. *DIANTHUS deltoides*. It is said to grow spontaneously on hills in England, but I have neither seen it growing wild, nor do I know any one who ever has.
DILL.
- 445. *CUCUBALUS Behen*. References. At the end, add, (Fl. dan. 857 is *Silene amoena*.)
- 454. *SILENE acaulis*. [May and June. Mr. GRIFFITH.]
- 474. *LYCHNIS dioica*. References. After Curt. insert, Ludw. 170.—
- 476. *CERASTIUM vulgatum*. Walc. 5.
- 478. *CERASTIUM alpinum*. Hairs tapering, mostly terminating in globular heads. Leaves spear-oval, tapering downwards. Fruit-stalks with hairs, nearly equal in length to the breadth of the fruit-stalk. Caps. elliptical-globular, cloven at the end into 10 segments; segments blunt, bowed in. Seeds reddish brown, orbicular, I suspect not ripe. Specimen from Mr. Griffith. Sr.—Fruit-stalk, hairs transparent, jointed, the knots somewhat opaque. Mr. GRIFFITH, St.
[Top of Clogwyn y Garnedd, very near to plants of *C. latifolium*. Mr. GRIFFITH.]

478. *CERASTIUM latifolium*. Fruit-stalk, hairs twice as long as the breadth of the fruit-stalk. Caps. in the specimens examined not ripe, elliptical, opening with several segments. Specimen from Mr. Griffith. ST.
— Hairs tapering, finely pointed, jointed, knots remote, just sensibly thicker than the rest of the hair. Mr. GRIFFITH. ST.

[Top of Clogwyn y Garnedd, very near to plants of *C. alpinum*. June and July. Mr. GRIFFITH.]

491. line 1. *AGRIMONIA Eupatoria*. Line 1. After Ludw. add, Curt. v. 53.—
492. *RESEDA Luteola*. Fl. dan. 864.—Sheldr. &c.
496. *EUPHORBIA exigua* β. *E. platyphyllos* β Hudf. 210. Mr. RELHAN.
499. *EUPHORBIA platyphyllos* β. *E. segetalis* β Relhan.
502. *SEMPERVIVUM tetorum*. Read, Curt. iii. 27. — Fl. dan. &c.
507. *PRUNUS Cerasus*. After Hunt. evel. 188, add, i. p. 181. ed. II.—
508. *PRUNUS domestica*. One horse ate the young shoots, when another at the same time refused them. Repeated. ST.
510. *CRATÆGUS Aria*. After Hunt. evel. 181, add, i. p. 175. ed. II.—
511. *CRATÆGUS torminalis*. After Hunt. evel. 182, add, i. 176. ed. II.—
CRATÆGUS monogynia. After Hunt. evel. 398, add, ii. p. 92. ed. II.—
513. *SORBUS aucuparia*. After Hunt. evel. 218, add, i. p. 211. ed. II.—
515. line 12 from the bottom, before Ludw. insert Fl. Ross. xiii. 1.
519. *SPIRÆA Ulmaria*. After Ludw. 23, add, Curt. v. 53.—
520. *ROSA rubiginosa*. Fl. dan. 870.
523. *ROSA canina*. Walc. 5.
536. *TORMENTILLA reptans*. After Walc. add, Plot. oxf. 9. 5, at p. 146, cop. in Pet. &c.
551. *PAPAVER Argemone*. Read Curt. v. 53.—Fl. dan. &c.
553. *PAPAVER somniferum*. A horse ate of it at two separate times. ST.
556. *TILIA europæa*. References. After Hunt. evel. at p. 201, add, i. p. 194. ed. II.—
559. *CISTUS Helianthemum*. Walc. 5.
564. *STRATIOTES Aloides*. After Mill. ill. add Bergen de Aloide at p. 1.—

Page 572. After line 17, insert, Its acrimony rises in distillation.

Some years ago a man travelled in several parts of England administering vomits, which, like white vitriol, operated the instant they were swallowed. The distilled water of this plant was his medicine; and from the experience I have had of it, I feel myself authorised to assert, that in the case of poison being swallowed, or other circumstances occurring in which it is desirable to make a patient vomit instantaneously, it is preferable to any other medicine yet known, and does not excite those painful contractions in the upper part of the stomach which the white vitriol sometimes does, and thereby defeating the intention for which it was given. WITH.

— 592. TEUCRIUM *Chamædrys*. Rubbish of Whittington Castle, near Oswestry, Shropshire. Mr. DICKENSON.

Line 4. Insert *Galeopsis*.

— 610. *Galeobdolon*. LINN.

— 611. BETONICA *officinalis*. Walc. 5.

— 621. ORIGANUM *vulgare*. After Ludw. 90, add, Curt. v. 57.—

— 634. RHINANTHUS *Crista galli*. Read, Curt. v. 55.—
— Riv. &c.

— 635. EUPHRASIA *officinalis*. Read, Curt. v. 57.—
— Sheldr. &c.

Line 15 from the bottom, after roundish, add, cloven; lower lip broad, cloven into 3,

— 667. SUBULARIA *aquatica*. [and June. Mr. GRIFFITH.]

— 669. DRABA *incana*. [July. Mr. GRIFFITH.]

— 676. THLASPI *Bursa Pastoris*. Walc. 5.

— 682. IBERIS *nudicaulis*. Line 3, after ST. add, and sometimes with leaves similar to those of the root. ST.

References. Line 4, after Park. 828. 7, add, Magn. bot. 187.—H. ox. iii. 19. 5.—(Ger. 214. 2. is *Thlaspi Bursa Pastoris*, as Dill in R. syn. p. 304. line 3, justly remarks.)

Line 7 from the bottom, after Hudf. read, Stems not unfrequently without leaves. DILL. in R. syn.—

— 685. CARDAMINE *petraea*. [Clogwyn du yn yr Arddu R. syn.—in the greatest plenty. Mr. GRIFFITH.]

[and July. Mr. GRIFFITH.]

— 694. SISYMBRIUM *Irio*. Read, Curt. v. 55.—Jacq. &c.

— 695. ERYSIMUM *officinale*. After Ludw. 187, add, Curt. v. 55.—

Page 706. *BRASSICA orientalis*. Fruit-stalks expanding. Pods 3 or 4 inches long, the lower open. Specimen from Mr. Curtis's garden. Mr. WOODWARD.

— 707. *BRASSICA campestris*. Blossom yellow. Specimen from a garden. Mr. WOODWARD.

Note † *After it insert*, Flowers and pods agree with it, but the leaves somewhat different.

— 712. *SINAPIS arvensis*. Read, Curt. v. 54.—*Fl. dan.*

— 713. *SINAPIS alba*. Read, Curt. v. 54.—*Blackw.*

— 722. *GERANIUM cicutarium*. References. Add at the end, *Cam. epit.* 601.—(*Magn. bot. p.* 109, is *G. petracum* of Gouan. *ill.* 45.)

α. LINN.—The 2 shorter petals spotted at the base. ST.

Flowers very early in the spring, rising from the crown of the root upon pedicles, soon after elevated upon a stalk, and in some situations a stem never appears. Stem mostly present, two inches to one and an half foot high. Leaves early in the spring lying flat on the ground, and in some plants continuing so all the year; wings in the spring oblong-egg-shaped, cut; in the summer and autumn with winged clefts and very narrow segments; in the autumn, in shady situations, frequently with much broader segments. Bloss. varying in size in different plants, and even in the same plant, the longest petal of a flower from a lateral shoot being $2\frac{1}{4}$ tenths of an inch long, while one from a larger branch was 3 tenths long; some large in small plants, and vice versa. Petals of plants growing in the same situations, and not otherwise distinguishable from each other, the two shortest in some plants spotted at the base, in others only one of them spotted, and sometimes very obscurely so, in others again unequal but without spots, and in others nearly equal and spotless; spots oblong, or elliptical, of a greenish yellowish hue, blackish grey, greenish white, or white sprinkled with numerous blackish purple dots, many of them confluent; sometimes so faint as to be just perceptible, being whitish with purple points, and sometimes only on one of the petals, sometimes wholly wanting. ST.

G. pimpinellifolium. Curt. cat. p. 87. Bot. Arr. ed. II. p. 724.—*G. pimpinellæ folio*. R. syn. 358, as evident from Linnæus's description of *G. cicutarium* given in Bot. Arr. p. 723, and Dillenius's in R. syn. given in Bot.

ADDITIONS TO THE

Bot. Arr. p. 724. — *G. cicutarium* β Reich. in syst. pl. iii. 318. — *G. cicutarium* γ Hudf. — *G. petiolis*, &c. Hall. n. 944, var. III. ST.

Corn fields, road sides, ditch banks.

April to Nov. 22. ST.

γ Petals without any spots at the bottom. ST.

Description of *G. cicutarium* by Mr. Woodward at p. 723. — *G. cicutarium* α Hudf. — *G. cicutæ folio inodorum*. R. syn. 357. — *G. petiolis*, &c. Hall. n. 944. α and β . ST.

Subject to the same varieties as α ; grows with it, and distinguishable in no respect that I have been able to discover. ST.

In the same situations as α . ST.

Page 726. **GERANIUM** *maritimum*. Add, On the South, and never on the North side of ditch banks. Mr. J. A. HUNTER.

— 727. **GERANIUM** *sylvaticum*. After *Fl. dan.* add, *Cam. epit.* 602, cop. in *Park.* 705. 5, and abridged in *H. ox.* v. 16. 25. —

— 728. line 6. After 942, add, *G. quartum* *Cam. epit.* 602. — (*G. moscoviticum purpureum* *Park.* 705, description seems to be *G. maculatum*.)

— 743. **LAVATERA** *arborea*. Chiffel in Portland Island. Mr. WARING.

— 759. **GENISTA** *pilosa*. Between Dolgelley and Llyn-Arran at the foot of Cader Idris, about half a mile from the pool. Mr. GRIFFITH.

— 762. **ONONIS** *spinosa*. References. Add, *Ludw.* 68. — *Sheldr.* &c.

— 775. **VICIA** *Cracca*. References. Add, *Curt.* v. 54. — *Fl. dan.* &c.

— 779. **VICIA** *sepium* 2. Chalk hills near Northfleet. *R. syn.* 478. — [Near, &c.]

Ants are so fond of it, that in the summer you can hardly find a plant of it without one upon it. Mr. GRIFFITH.

— 797. **TRIFOLIUM** *flexuosum*. JACQ. — *Wild Clover*. Worcestershire.

Cattle are not fond of it till it is touched by the frost. From the information of a farmer, to whom I pointed out the growing plant in flower. ST.

— 834. line 5, erase, and substitute, *Leaves* toothed, sea-green underneath. *Fruit-stalks* long, terminating, sprinkled with glutinous hairs. *Bunches* short. *Flowers* of the size of *S. palustris*, blue. LINN.

The above on the authority of Dr. Smith, in his admirable icon. fasc. I. p. 21. (ST.)

- Page 842. LEONTODON *hispidum*. Curt. v. 53.—Col. 3c.
 — 848. line 14 from the bottom, after Yorksh. add, RAY, [and Mr. WOOD.]
 — 854. line 2. Read, Curt. v. 55.—Walc. 3c.
 — 866. SERRATULA *alpina*. Line 4. Erase, “*I have not seen the plant.*”
 — 867. line 15. Before, fides, insert, On the highest rocks of Caernarvonshire, as Glogwyn y Carndh. R. syn. [Mr. GRIFFITH.] On the highest rock of Snowdon, and in Brearcliff near Brunley, Lancashire. MERRET.— [On Crib y Ddefcil, but in places scarcely accessible. Mr. GRIFFITH.]
 — 879. ONOPORDUM *Acanthium*. Read, Curt. v. 57.—Fuchs, 3c.
 — 941. ACHILLEA *Ptarmica*. After Ludw. insert, Curt. v. 58.—Walc. 3c.
 — 985. OPHRYSS *ovata*. Flowers, the lowermost shrivelled, the rest continuing green even after the seeds are shed. Empal. leaves 3, apparently extensions of the blunt angles of the seed-bud, which in the ripe capsule appear in the form of narrow valves. Petals 3, the 2 upper strap-shaped, greenish, tinged with purplish brown at the edge, the lowermost as described in Bot. Arr. 987, all apparently extensions of the sides of the seed-bud, which in the ripe capsule appear in the form of broad valves. Capsule not twisted, just before shedding its seed inversely egg-shaped, many times larger than the seed-bud, with 6 corners, 3 of them prominent but blunt, the 3 alternate ones keeled, of 1 cell, and 6 valves; 3 strap-shaped, forming the blunt corners, and 3 placed alternately, spear-oblong, thrice as broad, forming the acute corners of the capsule; opening widely at the futures, but connected above and below, letting out while yet green the seeds at the future! in this state nearly globular, yellowish green, resembling in figure an antique helmet with a vizor. Seeds very numerous, adhering to the inside of the broader valves, in 2 lines along the back of the keeled angle; oblong, tapering each way, white, membranaceous, reticulated, each containing a single globular kernel rather smaller than the diameter of the case which contains it, opaque and of a greenish white.

Hurcot Wood.

July 20, 1789. ST.

- Page 989. *OPHRYS Loefelii*. Stalk 3 to 8 inches high. *Leaves* variable in shape. *Petals*, the 2 lower I have never observed wreathed. I have found at least 50 plants this summer. Mr. RELHAN.
- 990. *OPHRYS Monorchis*. References. After *Fl. dan.* 102, insert, *The flexure of the stalk just above the root seems only an accidental circumstance.*
- 1066. line 29. At the beginning, insert, *Fl. Ross. XL. D. E. F. G.*
- 1069. *BUXUS sempervirens*. After *Ludw. add, Munt.* 157. 35.—*Sheldr. &c.*
- 1079. *SAGITTARIA sagittifolia*. *Walc.* 5.

ADDITIONS to the CATALOGUE of BOTANICAL WORKS.

ALLION. fl. Allionii flora Pedemontana. Tomi III. 1785. fol.

Amoen. Acad. Tomus VIII^{us} and IX^{us}. 1785. 8vo.

Berkenhout's synopsis of the natural history of Gr. Britain. Small 8vo. [It is a 2d edition of his *Outlines*.]

Fl. dan. fasc. xvi. 1787. fol. [by Vahl, a most able and experienced botanist.]

Gent. Mag. Gentleman's Magazine from 1742 to 1789.

Gesn. Figures of Gesner's published by Schmidel, but without his name, in a work intitled *Cordi lib. V^{us} ad. nova.* 1753. fol. The first No. (i.) implies the first plate; the second No. (ii.) the series of figures engraved on copper; and the third No. (iii.) the series of figures cut on wood.—These figures were re-published under the title of *Gesneri op. botanica*, and in 1759 and 1772 a fasciculus I. and II. added as a sequel of the former work.

Hoffm. fal. Hoffmann historia falicum fasc. I. 1785. fol.

Matth. a C. B. Matthioli opera a Casparo Bauhino. fol. 1674. fol.

Plot oxf. Plot historia naturalis oxoniensis. fol.

Plot Staff. Plot historia natural. staffordientis. fol.

Sheldr. Sheldrake's herbal, on above one hundred large folio copper-plates, drawn in the most masterly manner from the originals when in their highest perfection. fol. [Plates not numbered.] Any one therefore who wishes to make use of the references made to these plates, must number them with a pencil, in the order in which they are bound up. The figures of the plants occupy but a very small part of the plate. They are, however, very characteristic and chastely coloured.]

Thunb. Thunberg flora Japonica. 1784. 8vo. [Plates 39.]

DIRECTIONS to the BINDER.

VOLUME I.

Plate I. to front the Title Page.

Plate II. to front Page 29

VOLUME III.

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Signature g in the third Volume is only Half a Sheet.

13. 14. 15. 16 at the end.

17. 18 254

19 160

k 3

ERRATA.

E R R A T A.

- Page xxxii. line 3. *Read, L'HERETIER.*
- xlii. line 22. *For fol. read, 4to.*
- xlviii. line 22. *For Ekieriseos, read, Epicriseos.*
- li. line 15. *For Archiducata; read, Archiducatu.*
 Line 17. *For apart, read, detached.*
- lviii. *Add, Pet. pter. Petiveri pterigraphia, (in the latter half of the 2d vol. of his works.)*
- lix. line, last but one. *For Renialmi, read, Renealmi.*
- lxiii. line 4. *For Veronenfi, read, Veronenfes.*
 After line 6, insert, Sheldr. Sheldrake.
- lxiv. line 9. *For umbilliferous, read, umbelliferous.*
 Line 22. *Insert here, Trew. Editor of the German edition of Blackwell. [See Blackwell.]*
 Line 23. *After Trew add, rar. Trew rariores, &c.*
- 2. line 17. *Dele Dod. to the end of the paragraph included between the crotchets.*
- 3. line 18. *After Ger. add, em.*
- 6. line 12. *For VERONI'CA, read, VERO'NICA.*
- 9. line 9. *For Spike oblong, terminating, read, the terminating spike oblong.*
- 11. line 7. *For by ob. Lobf. read, by Lob. obf.*
- 13. VERONICA *Chamædrys.* Line 3. *Erase feeble, and insert, with hairs in two opposite lines.*
- 14. VERONICA *agrestis.* Line 2. *Add, LINN.*
- 15. VERONICA *triphyllus.* Line 5. *Erase very, &c. to the end of line 7.*
- 16. line 2. *After rocks, add, Discovered by Sir J. Cullum, near, &c.*
- 24. line 4. *The words, a very luxuriant specimen, should follow Curt. n. 34. fasc. iii.*
 Line 7 from the bottom, *after smooth, add, ST.*
- 29. line 4 from the bottom. *For PHALA'RIS, read, PHAL'ARIS.*
- 36. VALERIANA *officinalis.* Line 4. *Erase, and cop. by Park. 122.*

- Page 41. ESS. CHAR. line 3. Erase the lower ones without chives and pointals, persuaded that structure alone ought to distinguish these genera. ST.
- 43. SCHÆNUS compressus. Line 2. For cornered; flowers in the spike, read, cornered. Spikets pointing two opposite ways. Fence 1 leaf. LINN.
For brown, in the margin, read, tawney.
- 44. SCHÆNUS albus. References. Line 2. For Mich. 31. 14. 1, read, Mich. Cyperella I.
- 46. SCIRPUS. ESS. CHAR. Erase the lower ones generally producing chives and pointal.
SCIRPUS palustris. Line 1. After cylindrical, add, naked.
- 47. For SCIRPUS pauciflorus, read, SCIRPUS pauciflorus. Line 2. For, with 2 valves as long as the empalement, read, as long as the empalement, with 2 valves.
SCIRPUS acicularis. Line 2. For, consisting of 2 valves, read, with two valves.
- 48. line 6. Erase, whence Mr. HUDSON has very properly omitted that circumstance in his specific character.
- 50. SCIRPUS mucronatus. References to figures, line 2.
For 9. 4. read, 9. 14.
- 56. line 12 from the bottom. Read, Awns none.
- 58. PANICUM Dactylon. Paragraph 7 should follow paragraph 2.
- 67. line 5 from the bottom. For Llanperis, read, Llanberis.
- 73. AGROSTIS capillaris. Line 1. For very slender, read, hair-like.
- 79. line 6. Dele [Salt marshes, Norfolk. Mr. WOODWARD.]
Last line but 7, For Denis, read, Danes.
- 80. line 6 from the bottom. For ripnes, read, ripens.
In the margin, in some copies, for lver, read, silver.
- 86. line 16. After WITH. erase the remainder of that line, and the whole of the next.
- 87. line 6 from the bottom. For A. read Anders. —
- 89. line 6. Read, upright; the lowermost branches sometimes, &c.
Line 17. Read, P. arenaria, RETZ. scand. p. 16. — (Gramen, &c.
- 91. Note, line 2. Read, Poa retroflexa. (Curt. cat. n. 354.)
- 96. OBS. line 5. For or, read, and.
- 102. After FESTUCA pinnata, add, HUDS. — After FESTUCA sylvatica, add, HUDS. ed. I. —
- 103. In the margin, read, field.
Par. 2. l. 1. Insert Festuca pinnata β HUDS. — Gram. &c.

- Page 111. References, line 1. After C. B. add, *th.* 71. — *Munt.*
617. — *Chuf.* &c.
[Munting 173, good. Mr. WOODWARD.]
- 116. ARUNDO *Phragmites*. Line 1. *For* flexible, *read*, loose.
- 131. line 22. *For* Mont. *read*, Mich.
- 132. line 2. After TILLÆA, add, Redbanks.
- 136. line 9. *For* CUSCUTA, *read*, CUSCU'TA.
- 137. line 22. After JACQ. add, CURT. cat. n. 905. ST.
Line 4 from the bottom. After SAUV. JACQ. add, CURT.
cat. n. 905. ST.
- 140. line 19. Before *Ludw.* insert, *Curt. No.* 48.
- 143. line 18. *For* Park. 493. 3. — *Spike*, *read*, *Park.* 493. 3.
Spike. —
Line 30. *For* chalkey, *read*, chalky.
- 144. line 14 from the bottom. *Read*, including.
- 146. line 5 from the bottom. *For* marina, *read*, maritima.
- 147. line 26. *For* fruit-stalks, *read*, leaf-stalks.
- 148. line 4. After astringent, *erase* all to the word, *Cows*, in
the sixth line.
- RUBIA peregrina. Line 7. *Read*, Bloss. with 5 clefts,
- 149. GALIUM Cruciata. Line 2. *Read*, egg-spear-shaped.
Stem undivided, hairy. Bunches lateral, with 2 or
3 leaves.*
- 151. line 8 from the bottom. *Read*, [On a common called
Dudley Wood.]
- 152. line 2 from the bottom. *Read*, Valantia Aparine.
- 154. Note * *read* octonis.
- 158. line 21. Before *Curt.* insert, *Ludw.* 146. —
- 159. line 17. After the word foils, strike out the remainder of the
line, and also in line 19 erase all that follows WOODWARD.
- 161. line 8. *Read*, Penn. scoll. ii. 39, at p.
- 165 and 166. *For* CUSCUTA, *read*, CUSCU'TA.
- 170. Sagina procumbens γ *erase*, it being Spargula saginoides.
- 181. No. 275. *For* Bloss. jug-shaped, *read*, Bloss. tube pitcher-
shaped.
- 200. line 10 from the bottom, *read*, E. vulgare caule, &c. fol.
caulinis lanceolato, &c.
Line 9 from the bottom. After MILL. dict. ed. 6, add,
and abr. ed. 6.
- 202. Par. 1, at the end, add, ST.
Line 2 from the bottom, *read*, Mr. Martyn.

* Foliis quaternis ovato-lanceolatis, caule simplici piloso, racemis lateralibus, 2 five 3-phyllis. ST.

- ge 203. line 18. Before *Blackw.* insert, *Curt. iv. 49.*
- 211. line 21. Add, Dawlish, Devonshire. Mr. MARTYN.
- 212. line 19. After 5, strike out, *I have not at hand*, and insert,
p. 43.
- 216. line 10 from the bottom. Read, *Fl. dan. 189.*
- 226. line 13 from the bottom. For Enville, read, Kinver,
Staffordshire.
- 230. line 12 from the bottom. For Trittor, read, Fritten.
- 233. line 18. Read, Lantony.
- 248. Paragraph 1, add, St.
- Line 3 from the bottom. For leaf-stalks, read, fruit-stalks.
- 262. line 20. For Boughton, read, Broughton.
- 282. line 16 from the bottom. Read, Mr. WIGG.
- 283. line 6. Dele, *cop. in.*
- Line 18. For the terminating rundle terminating, read, the
Rundle terminating.
- Line 7. After 754, insert, *leaves and florets.*
- For *J. B. iii. 6*, read, *J. B. iii. b.*
- Line 10. After character, add, *Fl. dan. 754, the reduced
figure bad.*
- Line 15 from the bottom, after *minor*, insert, *flore luteo*,
not *luteolo*, as printed in *Fl. suec.*
- Line 14 from the bottom. Read, *given in the Fl. succ.
and by Scop.* For *Libanotis minor apii folio albicans. Bauh.
pin. 157, cited in Fl. suec.* read, *Daucus montanus apii, &c.
Bauh. pin. 150.*—For *Libanotis minor apii folio minor. Bauh.
pin. 157, as cited in Sp. pl.* read, *Daucus montanus apii folio
minor. Bauh. pin. 150.*—(*Libanotis apii folio minor. C. B.
157, who refers to Lob. obs. 402. 3, is, &c.*
- Line 9. Erase, First discovered in Great Britain by
ATHAMANTA *Oreoselinum* to be erased, and insert,
ATHAMANTA *Libanotis* only has been discovered
in Great Britain, which is the plant found by Ray on
the Gogmagog Hills, and which Mr. Relhan first clearly
ascertained to be *A. Libanotis*. Mr. WOODWARD.
- 284. Strike out the second and the three succeeding lines.
- 334. line 5. Read, Roth.
- 338. After line 14, insert, NARTHE'CUM. (Huds.) *Bloss. 6
petals. Shaft 0. Seeds with a tail at each end.*
- 339. After line 9, insert, TOFIELD'IA. (Huds.) *Cup 0. Bloss.
6 petals. Caps. 3 cells, 6 valves.*
- 366. line 22. After force, add, *Bot. Arr. ed. I.*
- 407. In the margin, for *amphibion*, read, *amphibious.*
- 410. line 11. Read, *Dod. 608. 2.*

- Page 411. *J. n.* line the last, and 412. *n. 3.* read *petechiale*.
 POLYGONUM *penfylvanicum*. References. Read,
Dod. 608. 1,
 — 443. line 2. Read, *Gamblingay*.
 — 469. line 18. Read, *Weathercoat*.
 Line 3 from the bottom, and 470, line 13 from the bot-
 tom, read, *THUNB.*
 — 478. CERASTIUM *latifolium*. Line 1. Erase *St.*
 — 479. line 10. For branches, read, *floral-leaves*.
 — 481. SPERGULA. For 636, read, 638.
 — 481. CERASTIUM *tomentosum*. Line 19. Read, in the
 garden of Mr. Bonfoy of Ripton, whose gardener,
 Mr. WHITELOCK, now nurseryman at Fulham, as-
 sured me, &c.
 Line 22. After wild, add, *and where we searched for it,*
but without success.
 — 482. line 4. For round, read, *cylindrical*.
 Line 9 from the bottom. Read, *Mant.* II. 390.
 — 532. In the margin, erase *Tormentil*, and read, *filvery*.
 — 535. line 10 from the bottom. Read, *Tormentilla erecta*. LINN.
 — *officinalis*. CURT.—*Potentilla Tormentilla erecta*. SCOP.
 &c.
 — 536. line 8 from the bottom. Erase *Potentilla reptans*.
 Line 6 from the bottom. For to make it, read, to make
T. reptans.
 — 565. line 25. For round, read, *cylindrical*.
 — 569. THALICTRUM *alpinum*. References. Line 1.
 For 166, read, 266.
 Line 2. For 7, read, 20.
 — 573. line 10. For *aurico'mus*, read, *auri'comus*.
 — 615. line 2. For 776, read, 778.
 — 629. line 2. For *Skul-cap*, read, *Skull-cap*.
 — 655. line 4. Erase *Shenstone Lane*, &c. and insert it at the end
 of line 11.
 — 659. line 15 from the bottom, after *roundish*, insert, *lower lip*
broad, the, &c.
 — 664. line 7. For CHEIRANTHUS, read, CHEIRAN'THUS.
 — 674. Line 19. Strike out, *green and slightly hairy, in others,*
very downy and white, and insert instead thereof, very
downy and white; in others it is green and slightly
hairy,
 — 685. CARDAMINE *petræa*. References. Read, *Fl. dan.* 386.
 Line 3. Read *Pet.* 50. 3.—*Pluk.* 101. 3.
 Line 5. Read, *Moelyn rhud* near *Phestiniog*.

- Page 690. line 2. *Read*, About Worcester.
- 698, 699 and 700. For CHEIRANTHUS, read, CHEIRAN'THUS.
- 702. ARABIS *thaliana*. References. Line 4. *Read*, Crantz. i. 3. 2, *is A. stricta.*)
- 710. BRASSICA *monensis*. References. Line 1. *Read*, Lightf. 15. 1, &c.
- 752. line 8 from the bottom. After LINN.—insert, M. Gerard, &c.
- 753. line 7, insert, to Nov.
Line the last, add, [to Sept. ST.]
- 768. line 7. For 581, read, 781.
- 807. line 15. For 236, read, 233.
- 808. line 10. *Read*, turning *black*, when, &c.
- 824. Strike out the 17th and 18th lines, and insert, 1022. SANTOLINA. Receptacle chaffy. Feather none. Cup tiled. hemispherical.
- 833. line 2 from the bottom. For SONCHUS *alpinus*, read, SONCHUS *canadensis*. Fruit-stalks rough with hair. Flowers, &c.
- 837. line 5. For 512, read, 509.
- 847. HIERACIUM *murorum*. Ger. em. 304. 1, imitated, &c.
- 848. 3 Reich. in *syst. pl.*—Leaves, &c.
- 859. line 6. *Erase* About, &c. to WOOD.
- 914. line 22. Strike out the [Marshy, and the whole of the two following lines, except, P. July. Aug.
- 921. line 24. After than 4, add, Blofs. have never seen of an orange colour.
- 926. line 6. *Read*, Wolf's-bane.
- 951. line 23. For BOCON, read, BOCCON.
- 964. lines 12. 27. Add ST.
- 965. lines 11. 18. Add ST.
- 989. Line 11 from the bottom. Strike out, near Bath, and insert, on Hinton Moor.
- 994. line 10. For lips, read, tips.
- 1000. line 4 from the bottom. For superior, read, inferior.
- 1008. After line 9, insert, 106. ERIOCAU'LON. Blofs. 3 petals. Cup compound. Seed 1, crowned by the blofs.
- 1008, 1069, 1071. For UR'TICA, read, URTICA.
- 1023. line 2 from the bottom, in the note, read, many catkins.
- 1024. SPARGANIUM *simplex*. Line 4. *Read*, 1 catkin.
- 1025. line 2. *Read*, 1 catkin.

RULES *for the* PRONUNCIATION *of the* LINNÆAN Names.

1. THE English reader is desired to observe, that the accent, or the force of the voice, is to be thrown upon that syllable or letter which precedes the mark. Thus in *Arbutus* the *Ar* is to be the accented or strongly founded syllable, and not the *bu*, as is commonly, though erroneously, the case.
2. That the letter *e* at the end of a name is always to be founded, thus the word *Elatine* is to be pronounced *E-lat'-ti-ne*, with four syllables, and not *E-la-tine*.
3. That in words ending in *ides*, the *i* is always to be pronounced long.
4. That *ch* is to be pronounced *hard*, like the letter *k*.
5. That in words beginning with *ſce* and *ſci*, the *c* is to be pronounced *soft*; though it is allowed that some few words derived from the Greek are exceptions to this rule.
6. That in such words as have *ſch*, the *c* is to be pronounced *hard*. Thus *Schœ'nus* is to be pronounced as if it were written *Ske'-nus*.
7. That *c* and *g*, before *e* and *i*, and before *æ* and *œ*, are to be pronounced *soft*, but before the other vowels and diphthongs, *hard*.

I N D E X.

N. B. The Latin Genera are printed in capitals, the English in roman, and the common, or provincial English names, in italic.

A <i>Bele Tree</i>	1121	<i>Allseed</i>	330
A'CER	1147	ALOPECU'RUS	58
ACHILLE'A	940	ALSI'NE	323
AC'ORUS	357	ALTHÆ'A	735
ACTÆ'A	546	Amaranth	1075
ADO'NIS	570	AMARANTHUS	<i>ibid.</i>
<i>Adonis flower</i>	571	ANAGAL'LIS	210
ADOX'A	417	ANCHU'SA	191
ÆGOPO'DIUM	316	ANDROM'EDA	425
ÆTHU'SA	300	ANEMO'NE	565
<i>Aglet headed Rush</i>	46	Anemone	<i>ibid.</i>
AGRIMO'NIA	490	ANETHUM	311
Agrimony	<i>ibid.</i>	ANGEL'TCA	290
AGROSTEM'MA	471	Angelica	<i>ibid.</i>
AGRO'STIS	69	Anise	313
A'JUGA	588	ANTHEMIS	935
A'IRA	76	ANTHER'ICUM	349
ALCHEMIL'LA	161	ANTHOXAN'THUM ..	25
<i>Alder</i>	240	ANTHYL'LIS	765
<i>Alder</i>	1067	ANTIRRHINUM ...	645
<i>Alehoof</i>	604	A'PHANES	167
Alexanders	310	A'PIUM	315
ALIS'MA	380	<i>Apple Tree</i>	517
<i>Aliffanders</i>	310	AQUILE'GIA	562
Alkanet	191	AR'ABIS	701
AL'LIIUM	342	AR'BUTUS	427
<i>Allgood</i>	251	Archangel	604
<i>Allheal</i>	607	ARCTIUM	863
<i>Allseed</i>	133	ARENA'RIA	458
<i>Allseed</i>	256	Argentine	879
		Argen-	

ARISTOLOCH'IA	1003	<i>Bastard Gromill</i>	190
Arrow-head	1079	<i>Bastard Hellebore</i>	997
<i>Arrow-headed Grafs</i>	378	<i>Bastard Pellitory</i>	941
Arrow-grafs	ibid.	<i>Bastard Pimpernel</i>	141
<i>Arsmart</i>	409	<i>Bastard Plaintain</i>	656
ARTEMIS'IA	889	<i>Bastard Stone Parsley</i> ...	294
A'RUM	1004, 1011	<i>Bastard Toadflax</i>	247
ARUNDO	116	<i>Batchelors-buttons</i>	945
<i>Afarabacca</i>	488	Baum	625
AS'ARUM	488	Baum-leaf	627
Ash	1149	<i>Bay-leaved Willow</i>	1101
Ash Tree	1150	<i>Bearded wild Oats</i>	114
<i>Ashweed</i>	316	<i>Bear Berries</i>	428
<i>Ash</i>	1122	<i>Bearsfoot</i>	582
ASPAR'AGUS	352	<i>Bearsfoot</i>	162
<i>Asparagus</i>	ibid.	<i>Bear Whortle Berries</i> ...	428
<i>Aspen Tree</i>	1122	Beech	1086
ASPERU'GO	197	<i>Beech Tree</i>	1087
ASPER'ULA	158	<i>Bee-flower</i>	994
ASTER	915	<i>Bee Orchis</i>	993
ASTRAG'ALUS	786	Beet	257
ATHAMANTA	282	Bell-flower	215
A'TRIPLEX	1142	BEL'LIS	926
ATROPA	232	Bennet	537
AVENA	112	Bent	69
Avens	539	BER'BERIS	365
Awlwort	667	<i>Berry-bearing Chickweed</i>	453
AZAL'EA	212	BETA	257
<i>Bald or Bawd Money</i> ...	301	Bethlemstar	346
BALLO'TA	615	BETONICA	611
Baneberry	546	Betony	611
<i>Bank Cresses</i>	695	BET'ULA	1065
Barberry	365	BIDENS	882
Barley	125	<i>Bilberries</i>	394
BART'SIA	632	Bindweed	212
<i>Base Hore-hound</i>	614	Birch	1065
<i>Base Rockett</i>	494	<i>Birch Tree</i>	1061
Basilweed	620	<i>Birdgrafs</i>	86
<i>Bast</i>	556	<i>Birds Cherry</i>	506
<i>Bastard Alkanet</i>	190	<i>Birds-eye</i>	205
<i>Bastard Asphodel</i>	351	<i>Birds-eye</i>	ibid.
<i>Bastard Balm</i>	628	Birds-foot	782
<i>Bastard Chickweed</i> ...	164	<i>Birds-nest</i>	274
<i>Bastard Cress</i>	674	<i>Birds-nest</i>	424
		<i>Birds-</i>	

<i>Birds-nest</i>	984	<i>Bruise-wort</i>	439
<i>Birds-tongue</i>	913	<i>Bryony</i>	1133
<i>Birds-foot Trefoil</i>	791	<i>BRYO'NIA</i>	<i>ibid</i>
<i>Birk</i>	1066	<i>Buckbean</i>	205
<i>Birthwort</i>	1003	<i>Bucke</i>	414
<i>Bitter Cresses</i>	689	<i>Buckshorn</i>	145
<i>Bitter-sweet</i>	235	<i>Buckthorn</i>	239
<i>Bitter Vetch</i>	769	<i>Buck Wheat</i>	414
<i>Bladder-nut</i>	321	<i>Buddle</i>	930
<i>Bladder-snout</i>	18	<i>BUFO'NIA</i>	164
<i>Black-berried Heath</i>	1111	<i>Bugle</i>	589
<i>Black berry Bush</i>	528	<i>Bugle</i>	588
<i>Black-berry-bearing Alder</i>	240	<i>Buglofs</i>	198
<i>Black Bindweed</i>	415	<i>Buglofs Cowslips</i>	194
<i>Black Briony</i>	1120	<i>Bullace</i>	508
<i>Black Bullace Tree</i>	509	<i>Bull-rush</i>	48
<i>Black Cherry Tree</i>	508	<i>Bumblekites</i>	528
<i>Black Poplar</i>	1122	<i>BU'NIAS</i>	716
<i>Black-thorn</i>	509	<i>BU'NIUM</i>	275
<i>Black Whortle Berries</i>	394	<i>BUPLEU'RUM</i>	267
<i>Black Worts</i>	394	<i>Burdock</i>	864
<i>Blea-berries</i>	394	<i>Bur Gold Dock</i>	371
<i>Blinks</i>	131	<i>Burnet</i>	1081
<i>Blood-wort</i>	147	<i>Burnet Rose</i>	523
<i>Blood-wort</i>	370	<i>Burr</i>	863
<i>Bloody-men's fingers</i>	1012	<i>Burr-weed</i>	1023
<i>Blue Bottles</i>	945	<i>Butcher's Broom</i>	1133
<i>Bogrush, black headed</i>	42	<i>BU'TOMUS</i>	419
<i>Borage</i>	196	<i>Butter and Eggs</i>	649
<i>BORA'GO</i>	<i>ibid</i>	<i>Butterburr</i>	907
<i>Box</i>	1068	<i>Butter Cups</i>	575, 576
<i>Bramble</i>	525	<i>Butterflower</i>	<i>ibid, ibid</i>
<i>Bramble</i>	528	<i>Butter-jags</i>	807
<i>Branks</i>	414	<i>Butterwort</i>	16
<i>BRAS'SICA</i>	706	<i>BUX'US</i>	1068
<i>BRI'ZA</i>	92	<i>Cabbage</i>	706
<i>Broad-leaved Pease Ever-</i>		<i>Calamint</i>	626
<i>lasting</i>	773	<i>Calamus</i>	357
<i>Brome-grafs</i>	103	<i>Calathian Violet</i>	261
<i>BROM'US</i>	<i>ibid</i>	<i>Calf's Snout</i>	650
<i>Brooklime</i>	12	<i>Call me to you</i>	958
<i>Brookweed</i>	221	<i>CALLIT'RICHE</i>	4
<i>Broom</i>	756	<i>CAL'THA</i>	582
<i>Broomrape</i>	657	<i>Camline</i>	665

<i>Cammock</i>	763	CHIERAN'THUS	698
CAMPAN'ULA	215	CHELIDO'NIUM	547
Campion	445	CHENOPO'DIUM	251
Canary	65	<i>Chequered Daffodil</i>	346
<i>Can-dock</i>	555	CHERLE'RIA	462
Candy-tuft	682	Chervil	306
<i>Canterbury Bells</i>	219	<i>Chestnut Tree</i>	1087
<i>Capons-tail-grafs</i>	99	<i>Chickling Vetch</i>	773
Caraway	311	<i>Chickweed</i>	14
CA'REX	1025	<i>Chickweed</i>	323
CARDAM'INE	684	<i>Chickweed Breakstone</i> ...	170
CAR'DUUS	868	<i>Chickweed ivy</i>	15
Cardinal-flower	950	<i>Chickweed upright</i>	<i>ibid</i>
CAR'LINA	880	<i>Childing Pinks</i>	441
Carline	<i>ibid</i>	<i>Childing Sweet Williams</i> ..	<i>ibid</i>
Carnation	441	CHIRO'NIA	237
CAR'PINUS	1089	CHLO'RA	392
Carrot	274	CHRYSAN'THEMUM	928
CA'RUM	312	CHRYSOSPLE'NIUM	404
Catchfly	448	<i>Churn-staff</i>	497
<i>Catchweed</i>	157	Cicely	300
<i>Catchweed</i>	197	CICHO'RIUM	862
Cats-ear	858	CICU'TA	299
<i>Catsfoot</i>	604	CINERA'RIA	919
<i>Catsfoot</i>	895	<i>Cinquefoil</i>	162
<i>Catsfoot</i>	947	<i>Cinquefoil</i>	531
Cat Mint	594	<i>Cinquefoil</i>	335
<i>Cats-milk</i>	497	<i>Ciphan Rose</i>	523
Cat's-tail	1021	CIRCÆ'A	22
CAU'CALIS	270	CISTUS	557
Celandine	547	<i>Cistus</i>	<i>ibid</i>
CENTAUREA	943	<i>Clary wild</i>	22
Centory	237	Claver	804
CENTUN'CUS	141	<i>Cleavers</i>	157
CERASTIUM	476	CLE'MATIS	567
CERATOPHYLLUM	1076	CLINOPO'DIUM	620
<i>Chadlock</i>	713	<i>Clivers</i>	157
CHEROPHYLLUM	306	<i>Clott-burr</i>	864
<i>Chase-weed</i>	899	<i>Clott-weed</i>	1073
<i>Chaffweed</i>	141	<i>Cloud-berries</i>	529
<i>Charlock</i>	713	<i>Clove July Flower</i>	441
Chamomile	935	<i>Clove Pink</i>	<i>ibid</i>
CHA'RA	1015	<i>Clover-grafs</i>	795
<i>Cheeze-Rening</i>	155	<i>Clovers Allheal</i>	613
		<i>Clovers</i>	

<i>Glowens Woundwort</i>	613	<i>Cornflower</i>	945
<i>Club-grass</i>	46	<i>Corn Marigold</i>	930
<i>Club-rush</i>	<i>ibid</i>	<i>Corn Parsley</i>	295
COCHLEA'RIA	677	<i>Corn Rose</i>	552
<i>Cockle</i>	471	<i>Corn Sallad</i>	37
<i>Cocks-comb</i>	635	COR'NUS	160
<i>Cocks-foot</i>	57	<i>Cornwall Saxifrage</i>	290
<i>Cocks-foot</i>	93	CORRIGIO'LA	322
<i>Cocks-head</i>	786	CORYLUS	1090
<i>Cocks-head</i>	<i>ibid</i>	<i>Cottongrass</i>	52
<i>Coddled Corn Violet</i>	220	<i>Cotton-weed</i>	886
<i>Coddled Mouse-ear</i>	702	<i>Cotton Thistle</i>	879
<i>Coddlings and Cream</i> ...	389	COTYLEDON	463
COL'CHICUM	379	<i>Couch-grass</i>	129
<i>Colewort</i>	718	<i>Cowbane</i>	299
<i>Colts-foot</i>	904	<i>Cow Clover</i>	795
<i>Columbine</i>	562	<i>Cowgrass</i>	637
CO'MARUM	540	<i>Cows Lungwort</i>	224
<i>Comfrey</i>	195	<i>Cow Parsley</i>	307
<i>Common Avena</i>	537	<i>Cow Parsnep</i>	288
<i>Common Chervil</i>	305	<i>Cow quakes</i>	93
<i>Common English Mercury</i>	251	<i>Cowslips</i>	203
<i>Common Germander</i>	592	<i>Cowslips of Jerusalem</i> ...	194
<i>Common Mallow</i>	738	<i>Cow Weed</i>	307
<i>Common Melilot</i>	790	<i>Cow wheat</i>	637
<i>Common Nightshade</i>	236	<i>Crab Tree</i>	517
<i>Common Pink</i>	441, 444	<i>Crake berries</i>	1111
<i>Common Sallow</i>	1107	<i>Crake Needle</i>	304
<i>Common Sorrell</i>	376	CRAM'BE	718
<i>Common Yellow Vetchling</i>	772	<i>Cran-berries</i>	395
<i>Common Whitlow-grass</i>	668	<i>Cranesbill</i>	722
<i>Common wild Cherry tree</i>	507	<i>Crap</i>	121
<i>Common wild Orache</i>	254	<i>Crap</i>	414
CO'NIUM	277	CRATAE'GUS	510
CONVALLA'RIA ...	353	<i>Creeping Mouse-ear</i> ...	845
CONVOL'VULUS ...	212	<i>Creeping Water Parsnep</i>	293
CON'YZA	900	CREPIS	852
<i>Cop Rose</i>	552	<i>Creslet</i>	666
<i>Coralwort</i>	683	<i>Cresse Rockett</i>	<i>ibid</i>
<i>Coriander</i>	302	<i>Crimson grass Vetch</i> ...	770
CORIAN'DRUM	302	CRITH'MUM	286
<i>Corn-berries</i>	395	CRO'CUS	37
<i>Corn Cale</i>	713	<i>Cross-wort</i>	149
<i>Cornel</i>	160	<i>Cross-wort</i>	1139

<i>Croswort Madder</i>	156	DIAN'THUS	440
Crow-berry	1110	DIGITA'LIS	654
<i>Crow-flower</i>	473	Dill	311
Crow-foot	571	DIP'SACUS	137
Cuckow-bread	469	Dittander	670
Cuckow-flower	473	<i>Dittander Pepperwort</i> ...	671
<i>Cuckow-flower</i>	689	Dock	369
<i>Cuckow-meat</i>	470	Dock Cresses	862
Cuckow-pint	1011	Dodder	165
<i>Cuckow Sorrel</i>	470	<i>Dogberry tree</i>	160
CUCU'BALUS	445	<i>Dogs-grafs</i>	129
Cudweed	893	<i>Dogs Mercury</i>	1125
<i>Cudweed</i>	899	<i>Dog Rose</i>	523
Currant	242	<i>Dogs Rose</i>	524
CUSCU'TA	165	Dogs-tail	94
CYNOGLOS'SUM ...	192	<i>Dogs Violet</i>	955
CYNOSU'RUS	94	DORO'NICUM	925
CYPE'RUS	44	Double-tooth	882
<i>Cyperus, bastard</i>	42	<i>Doves-foot</i>	731
<i>Cyperus brown</i>	ibid	DRA'BA	668
Cyphel	462	<i>Drank</i>	121
<i>Cyphel</i>	502	Dropwort	296
CYPRIPED'IDIUM	1001	<i>Dropwort</i>	518
DAC'TYLIS	93	DRO'SERA	331
Daffodil	341	DRY'AS	539
Daisy	926	Duck-meat	1019
Damewort	700	<i>Dutch Agrimony</i>	885
Dandelion	838	<i>Dutch Clover</i>	793
<i>Dandelion</i>	853	<i>Dutch Myrtle</i>	1116
<i>Danewort</i>	319	Dwale	232
DAPH'NE	402	<i>Dwarf bay</i>	402
<i>Darnel</i>	101, 102	<i>Dwarf Clubrush</i>	47
Darnel	120	<i>Dwarf Cistus</i>	559
DATU'RA	230	<i>Dwarf Elder</i>	319
DAU'CUS	274	Dwarf honeysuckle ...	161
<i>Dead Arsmart</i>	411	<i>Dwarf Wild Flax</i>	330
<i>Deadly Nightshade</i>	233	<i>Dway-berries</i>	233
<i>Dead Tongue</i>	297	<i>Dyers Weed</i>	493
<i>Dee Nettle</i>	605	<i>Dyers Weed</i>	758
<i>Deers hair</i>	47	<i>Earth Chesnut</i>	277
DELPHIN'IUM	560	<i>Earth Nut</i>	ibid
DENTA'RIA	683	ECHINOPH'ORA ...	268
<i>Devils-bit</i>	139	EC'H'IUM	199
<i>Dee-berry Bush</i>	526	<i>Eglantine</i>	521

ELAT'INE	418	Figwort	651
Elder	319	FILA'GO	947
Elecampane	922	<i>Fine-leaved bastard Parsley</i>	271
Elm	258	Fir	1092
EL'YMUS	124	<i>Five-leaved Grass</i>	535
EM'PETRUM	1110	Flag	39
Enchanters-wort	22	Flax	328
Endive	862	Flaxweed	247
<i>English Galingale</i>	45	Flea-bane	902
<i>English Hyacinth</i>	356	Flea-wort	919
<i>English soft or gentle Thistle</i>	877	<i>Flix-weed</i>	694
EPILO'Bium	387	<i>Floating Clubrush</i>	48
ERI'CA	396	<i>Flote-grass</i>	101
ERIG'ERON	902	<i>Flower de luce</i>	39, 41
E'RIOCAU'LON	1062	<i>Flowering Rush</i>	420
ERIOPH'ORUM	52	Fluellin	9, 10
ER'VUM	780	<i>Fly Orchis</i>	992
ERYNG'IUM	263	<i>Fold Meadowgrass</i>	86
Eryngo	ibid	<i>Fools Parsley</i>	301
ERY'SIMUM	695	<i>Fountain Chickweed</i>	458
EUPATO'Rium	884	<i>Fowl-grass</i>	86
EUPHOR'BIA	494	<i>Fowl Meadowgrass</i>	86
EUPHRA'SIA	635	Foxglove	654
<i>Everlasting</i>	894	Foxtail	58
EVON'YMUS	241	<i>Foxtail Grass</i>	59
Eye-bright	635	FRAGA'RIA	529
FA'GUS	1086	<i>Framboise</i>	525
<i>Fair Maids of February</i>	340	FRANKE'NIA	367
<i>Fat-hen</i>	1144	Frankwort	367
<i>Feaberry</i>	243	FRAX'INUS	1149
Feather-grass	111	<i>French Lungwort</i>	848
Feather-foil	207	<i>French Mercury</i>	1126
Felwort	260	<i>French Wheat</i>	414
<i>Felwort</i>	262	<i>Fresh Water Soldier</i>	564
<i>Female Foolstones</i>	971	<i>Friars Crown</i>	875
<i>Female-handed Orchis</i>	977	<i>Fringed Water Lily</i>	206
<i>Fen-berries</i>	395	FRITILLA'RIA	345
Fescue	96	Fritillary	345
FESTU'CA	ibid	Frog-bit	1127
Fetch	776	<i>Frogs Lettuce</i>	173
Feverfew	931	FUMA'RIA	751
FICA'RIA	579	Fumitory	ibid
<i>Fiddle Dock</i>	373	GALAN'THUS	340
<i>Field Marjoram</i>	622	Gale	1115

GALEOB'DOLON....	610	Goosegrafs	149, 157
GALEOP'SIS	607	Goosegrafs	1139
Galingale	44	Goose Tansey	532
GAL'TUM	149	Goose Tongue	911
Garlick	342	Gorze	760
Gatten Tree	160	Go-to-bed at Noon	828
Gatter Tree	ibid.	Goulans	930
Gatteridge Tree	241	Goule	1116
Gentian	261	Goutweed	316
GENTIA'NA	ibid	Grass of Parnassus	325
GENISTA	758	Grasspoly	489
GERANIUM	722	Grasspoly	490
Germander	590	Grasswrack	1004
Germander wild	13, 14	Graymill	189
German Knotgrafs	437	Great bastard Madder ...	156
German Madwort	198	Great Bilberry Bush ...	394
GE'UM	537	Great Burnet	148
Giant Throatwort	218	Great Burnet Saxifrage	314
Gill	603	Great Catstail	1022
Gilli-flower	698	Great Figwort	652
Gladdon, or Gladwyn ...	40	Great Fleabane	901
Gladiole	419	Great Goosegrafs	198
Glaswort	3	Great hairy Willowherb	389
Glaswort	258	Great Henbit	606
GLAU'X	246	Great Knapweed	946
GLECHO'MA	603	Great Spearwort	572
Globe-flower	580	Great sweet Chervil	303
GNAPHAL'IUM ...	893	Great Throatwort	49
Goats-beard	827	Great Toothwort	642
Gold Cup	575	Great Water Parsnep ...	292
Gold of Pleasure	666	Great wild Climber	568
Golden Lungwort	848	Greater Bistort	407
Golden Rod	917	Greater Celandine	547
Golden Samphire	925	Greater Daisy	929
Golden Saxifrage	406	Greater Water Caltrops	174
Goldilocks	573	Greeds	1020
Goldins	928	Greek Valerian	215
Goldins	930	Greenweed	758
Good Henry	251	Greenwood	ibid.
Good King Henry	ibid	Grig	397
Gooseberry	244	Gromill	189
Goose Corn	361	Gromwell	ibid
Goosefoot	251	Ground Ash	316
Goosegrafs	532	Ground Furze	763

Hairy

<i>Ground Ivy</i>	604	HELLEBORUS	581
<i>Ground Pine</i>	590	<i>Helme</i>	119
<i>Groundfel</i>	908	<i>Hemlock</i>	277
<i>Guelder Rose</i>	319	<i>Hemp Agrimony</i>	885
<i>Guinea Hen-flower</i>	346	<i>Hempweed</i>	884
<i>Gypsiewort</i>	19	<i>Henbane</i>	231
<i>Hairgrafs</i>	76	<i>Henbit</i>	615
<i>Hairy Kidneywort</i>	431	<i>Henbit small</i>	15
<i>Hairy Sheeps Scabious</i>	949	<i>Hensfoot</i>	270
<i>Hard-beam Tree</i>	1089	<i>Heptree</i>	524
<i>Hard-heads</i>	944	HERACLE'UM	287
<i>Hard-grafs</i>	122	<i>Herb Bennet</i>	537
<i>Hard Irons</i>	944	<i>Herb Christopher</i>	546
<i>Harebell</i>	356	<i>Herb Gerard</i>	316
<i>Harestrong</i>	284	<i>Herb Paris</i>	417
<i>Hares-ear</i>	132	<i>Herb Robert</i>	730
<i>Hares-foot</i>	798	<i>Herb Trinity</i>	958
<i>Hares-foot Trefoil</i>	ibid.	<i>Herb Twopence</i>	210
<i>Hares Lettuce</i>	832	HERNIA'RIA	250
<i>Hares-tail Rush</i>	52	HES'PERIS	700
<i>Harts Clover</i>	790	HIERA'CIUM	844
<i>Hartshorn</i>	145	<i>High Taper</i>	224
<i>Hartwort</i>	269	<i>Hind Berry</i>	525
<i>Hafel</i>	1090	HIPPOCREPIS	783
<i>Hafel-nut Tree</i>	1091	<i>Hippophae</i>	1114
<i>Hather</i>	397	HIPPU'RIS	2
<i>Hawks-beard</i>	852	<i>Hogs Fennel</i>	284
<i>Hawk Nut</i>	277	<i>Hogweed</i>	287
<i>Hawkweed</i>	844	HOL'CUS	1137
<i>Hawthorn</i>	510	<i>Holly</i>	168
<i>Hawthorn</i>	512	HOLOS'TEUM	132
<i>Headwark</i>	552	<i>Honesty</i>	568
<i>Heart Clover</i>	809	<i>Honewort</i>	294
<i>Heartsease</i>	958	<i>Honeyfuckle</i>	222
<i>Heart Trefoil</i>	809	<i>Honeyfuckle Trefoil</i>	795
<i>Heath</i>	396	<i>Hooded Willowherb</i>	629
<i>Heath Matweed</i>	54	<i>Hop</i>	1117
HED'ERA	244	<i>Hops</i>	ibid
<i>Hedge Mustard</i>	695	HOR'DEUM	125
<i>Hedge Nettle</i>	613	<i>Horehound</i>	617
<i>Hedge Parsley</i>	273	<i>Horehound Water</i>	20
HEDYS'ARUM	785	<i>Horned Pondweed</i>	1014
<i>Hellebore</i>	581	<i>Horn-beam</i>	1089
<i>Helleborine</i>	996	<i>Horn-beam Tree</i>	ibid

<i>Horn-beech Tree</i>	1089	<i>Ivy-leaf</i>	836
<i>Hornweed</i>	1076	<i>Kelpwort</i>	257
<i>Horsebane</i>	298	<i>Kernelwort</i>	652
<i>Horse Beech Tree</i>	1089	<i>Kex</i>	278
<i>Horseknops</i>	944	<i>Kidney Vetch</i>	765
<i>Horse Radish</i>	681	<i>Kidneywort</i>	464
<i>Horse-shoe</i>	783	<i>Kings Clover</i>	790
HOTTO'NIA	207	<i>Kings-spear</i>	350
<i>Hounds-berry</i>	160	<i>Kipper Nut</i>	277
<i>Hounds-tongue</i>	192	<i>Kiss at the Garden Gate</i>	958
<i>Hounds-tree</i>	160	<i>Knapweed</i>	943
<i>House-leek</i>	501	<i>Knawel</i>	436
<i>Hover</i>	114	<i>Kneedgrass</i>	56
HU'MULUS	1117	<i>Knee Holly</i>	1133
<i>Hunger Weed</i>	577	<i>Knolles</i>	708
<i>Hurr-burr</i>	864	<i>Knopweed</i>	944
<i>Hurtle-berries</i>	394	<i>Knot-berries</i>	529
<i>Hurt Sickle</i>	945	<i>Knotgrass</i>	245
<i>Hyacinth</i>	356	<i>Knout Berries</i>	529
HYACIN'THUS	356	LACTU'CA	834
HYDRO'CHARIS	1127	<i>Ladder to Heaven</i>	215
HYDROCOT'YLE	265	<i>Ladies Cushion</i>	436
HYOSCY'AMUS	231	<i>Ladies-finger</i>	765
HYOS'ERIS	856	<i>Ladies Foxglove</i>	224
HYPER'ICUM	812	<i>Ladies-hair</i>	93
HYPOCHÆ'ERIS	858	<i>Ladies-mantle</i>	161
<i>Jack by the Hedge</i>	697	<i>Ladiesmock</i>	684
<i>Jacobs ladder</i>	214	<i>Ladies-slipper</i>	1001
JASIO'NE	948	<i>Lady-seal</i>	1119
I'BERIS	682	<i>Ladies Thistle</i>	875
I'LEX	168	<i>Ladies Traces</i>	67
ILLEC'EBRUM	245	<i>Lakeweed</i>	409
IMPA'TIENS	961	<i>Lakeweed</i>	1013
IMPERATO'RIA	308	<i>Lambs Lettuce</i>	37
IN'ULA	922	<i>Lambs Tongue</i>	143
I'RIS	39	<i>Lambs Quarters</i>	1144
<i>Irish Worts</i>	426	LA'MIUM	604
I'SATIS	717	<i>Lancashire Asphodel</i>	351
JUN'CUS	358	<i>Lang de boeuf</i>	830
<i>Juniper</i>	1128	LAP'SANA	861
<i>Juniper Tree</i>	1129	<i>Lark-heel</i>	561
JUNIP'ERUS	1128	<i>Larksclaw</i>	ibid
<i>Jur-nut</i>	277	<i>Larkspur</i>	560
<i>Ivy</i>	244	<i>Larkstoos</i>	561
			<i>Late</i>

<i>Late-flowering Orchis</i>	970	LO'LIUM	120
LATHRÆ'A	642	<i>London Pride</i>	432
LATH'YRUS	769	LONIC'ERA	222
LAVATERA	743	<i>Long-leaved Corn Spurge</i>	499
<i>Least Chickweed</i>	459	<i>Long-leaved purple Trefoil</i>	797
<i>Least Goosegrafs</i>	154	<i>Long-leaved Sage of Je-</i>	
<i>Least Rupturewort</i>	330	<i>rusalem</i>	194
<i>Least Rush</i>	50	<i>Long-leaved Water Hem-</i>	
<i>Least Stitchwort</i>	171	<i>lock</i>	300
<i>Least upright Clubrush</i>	48	<i>Long-rooted Hawkweed</i>	860
<i>Least Water Parsnep</i>	295	<i>Long smooth-headed</i>	
LEM'NA	1019	<i>Poppy</i>	552
LEON'TODON	838	<i>Loofestripe</i>	208
LEONU'RUS	618	<i>Lords and Ladies</i>	1012
<i>Leopards-bane</i>	925	LO'TUS	804
LEPID'IUM	670	<i>Louseberry</i>	241
<i>Lesser Burdock</i>	1074	<i>Lousewort</i>	643
<i>Lesser Celandine</i>	579	<i>Lovage</i>	289
<i>Lesser Centory</i>	238	<i>Love in idleness</i>	958
<i>Lesser Hemlock</i>	301	<i>Lucern</i>	807
<i>Lesser Spearwort</i>	572	<i>Lungwort</i>	193
<i>Lesser Venus Looking-glass</i>	220	<i>Lungwort</i>	642
<i>Lesser Water Caltrops</i>	173	LYCH'NIS	473
<i>Lettuce</i>	834	LYCOP'SIS	193
LIGUS'TICUM	289	LYC'OPUS	19
LIGUS'TRUM	7	LYSIMA'CHIA	208
<i>Lily of the Valley</i>	354	LY'THRUM	489
<i>Lime</i>	556	<i>Madder</i>	148
<i>Lime-grafs</i>	124	<i>Madder</i>	155
<i>Lime Tree</i>	556	<i>Madness</i>	288
LIMOSSEL'LA	656	<i>Madwort Mountain</i>	13
<i>Linden Tree</i>	556	<i>Maiden Pink</i>	442
<i>Ling</i>	397	<i>Makinboy</i>	499
LI'NUM	328	<i>Male Fool-stones</i>	972
<i>Liquorice Vetch</i>	787	<i>Male-handed Orchis</i>	976
LITHOSPER'MUM	189	<i>Male Pimpernel</i>	211
<i>Little Field Madder</i>	160	<i>Mallow</i>	736
<i>Little Sunflower</i>	559	MAL'VA	736
<i>Little Throatwort</i>	219	<i>Maple</i>	1147
LITTOREL'LA	1064	<i>Maple</i>	1148
<i>Live-for-ever</i>	894	<i>Mare's-tail</i>	42
<i>Lizard flower</i>	979	<i>Marjoram</i>	621
LOBE'LIA	950	<i>Marle Grafs</i>	797
<i>Locker Gowls</i>	580	<i>Marram</i>	119

MARRU'BIUM	617	MEN'THA	596
<i>Marsh Centory</i>	263	MENYANTHES	205
<i>Marsh Cinquefoil</i>	541	MERCURIA'LIS	1124
<i>Marsh Cistus</i>	425	<i>Mercury</i>	251
<i>Marsh Cleaver</i>	206	<i>Mercury</i>	1124
<i>Marsh Gentian</i>	261	MES'PILUS	515
<i>Marsh Hedge Hog Grass</i> 1038		<i>Meu</i>	301
<i>Marsh Holy Rose</i>	425	Mezereon	402
<i>Marshlocks</i>	540	<i>Middle Fleabane</i>	923
<i>Marsh Mallow</i>	736	MIL'IUM	68
<i>Marsh Marigold</i>	583	<i>Milfoil</i>	942
<i>Marsh Samphire</i>	3	<i>Milfoil</i>	1077
<i>Marsh Trefoil</i>	206	<i>Milk Thistle</i>	875
<i>Marsh Whortle-berries</i> ...	395	<i>Milkweed</i>	280
<i>Marsh worts</i>	395	<i>Milkweed</i>	832
<i>Masterwort</i>	308	<i>Milkwort</i>	754
<i>Matgrafs</i>	54	<i>Millet</i>	68
<i>Mathan</i>	939	<i>Millet Cyperus Grass</i> ...	51
<i>Matfelon</i>	944	<i>Millet Grass</i>	69
MATRICA'RIA	931	<i>Mill-mountain</i>	330
<i>Matted Sea Lavender</i> ...	327	<i>Mint</i>	596
<i>Matweed</i>	54	<i>Mithridate Mustard</i>	674
<i>Mauls</i>	738	<i>Missel</i>	1112
<i>May</i>	512	<i>Misseltoe</i>	1112
<i>May Lily</i>	354	<i>Moneywort</i>	210
<i>Mazzards</i>	508	<i>Moneywort</i>	655
<i>Meadow-bout</i>	582	MONOT'ROPA	424
<i>Meadow-grafs</i>	85	MON'TIA.....	131
<i>Meadow Pinks</i>	473	<i>Moor-berries</i>	395
<i>Meadow Rue</i>	570	<i>Moon-flower</i>	929
<i>Meadow Saffron</i>	380	<i>Moor-grafs</i>	83
<i>Meadow Saxifrage</i>	285	<i>Moor-grafs</i>	331
<i>Meadowsweet</i>	518	<i>Moorwort</i>	425
<i>Mealytree</i>	318	<i>Moschatel</i>	417
MEDICA'GO	806	<i>Moss-berries</i>	395
<i>Medick</i>	ibid	<i>Moss-crops</i>	52
<i>Medlar</i>	515	<i>Moss Rush</i>	361
<i>Medlar Tree</i>	ibid	<i>Mother of Thyme</i>	623
MELAMPY'RUM ...	637	<i>Motherwort</i>	618
<i>Melic</i>	80	<i>Moule-ear</i>	476
MEL'ICA	ibid	<i>Moule-tail</i>	335
<i>Melilot Trefoil</i>	308	<i>Mountain Ash</i>	513
MELIS'SA	625	<i>Mountain Oſier</i>	1106
MELIT'TIS	627	<i>Mountain Stone Parsley</i>	283

<i>Mountain Saffron</i>	350	<i>One-berry</i>	417
<i>Mudweed</i>	656	ONO'NIS	762
<i>Mugweed</i>	149	ONOPOR'DUM	879
<i>Mugweed</i>	1140	O'PHYRS	983
<i>Mugwort</i>	892	Orache	1142
<i>Mullein</i>	223	OR'CHIS	967
<i>Musk Orchis</i>	991	ORIG'ANUM	621
<i>Musked Cranesbill</i>	725	ORNITHOG'ALUM	346
<i>Muscovy</i>	ibid	ORNI'THOPUS	782
<i>Mustard</i>	712	OROBAN'CHE	657
MY'AGRUM	665	OR'OBUS	767
MYOSO'TIS	188	<i>Oser</i>	1108
MYOSU'RUS	335	<i>Öwler</i>	1067
MYRI'CA	1115	OX'ALIS	469
MYRIOPHYL'LUM	1077	<i>Ox-eye</i>	929
<i>Myrtleflag</i>	357	<i>Ox-heel</i>	582
<i>Myrtlegrafs</i>	ibid	<i>Ox-lip</i>	203
<i>Nailwort</i>	668	<i>Ox-tongue</i>	829
<i>Nape</i>	707	<i>Paddowpipe</i>	2
NARCIS'SUS	341	<i>Pagils</i>	203
NAR'DUS	54	<i>Pagles</i>	ibid
<i>Narrowleaved Pease Ever-</i>		<i>Painted-cup</i>	632
<i>lasting</i>	772	<i>Painted Lady-grafs</i>	67
<i>Narrow-leaved Pondweed</i>	408	<i>Painting-root</i>	190
NARTHE'CIUM	350	<i>Panick</i>	55
<i>Navelwort</i>	463	<i>Panick</i>	68
<i>Needle Furze</i>	759	PAN'ICUM	55
<i>Nettle</i>	1069	<i>Pansies</i>	958
<i>Nettle Hemp</i>	608	PAPA'VER	550
<i>Nep</i>	593	PARIETA'RIA	1141
NEP'ETA	ibid	PA'RS	416
<i>Nightshade</i>	235	<i>Park-leaves</i>	812
<i>Nightshade Inchanters</i> ...	23, 24	PARNAS'SIA	324
<i>Nipplewort</i>	861	<i>Parnassia</i>	ibid
<i>None-so-pretty</i>	432	<i>Parsley</i>	315
NYMPHÆ'A	554	<i>Parsley piert</i>	163
<i>Oak</i>	1083	<i>Parsley piert</i>	167
<i>Oak Tree</i>	1084	<i>Parsnep</i>	309
<i>Oat</i>	112	<i>Passé Flower</i>	565
<i>Oatgrafs</i>	105	PASTINA'CA	309
OENAN'THE	296	<i>Pusque Flower</i>	565
<i>Oller</i>	1067	<i>Pauls Betony</i>	12
		<i>Pea</i>	766
			Pear

Pear	516	PLANTA'GO	142
Pear Tree	516	Plantain.....	<i>ibid</i>
Pearl-wort	169	<i>Pliant Mealytree</i>	318
Peaseling	767	<i>Plowmans Spikenard</i> ...	901
PEDICULA'RIS	643	<i>Plowmans-wort</i>	900
Pellitory'	1141	Plumb	506
Pellitory of the Wall....	<i>ibid</i>	<i>Plumb Tree</i>	508
Penny Cress	673	PO'A	85
Pennygrass	635	POLEMO'NIUM ...	214
Pennyroyal	602	<i>Poley Mountain</i>	425
Pennywort'	265	POLYCARPON	133
PEPLIS'	368	POLYG'ALA	754
Perennial Clover	797	POLYG'ONUM	406
Perennial Willow-leaved		Pondweed	171
<i>Arsmart</i>	408	<i>Poor-mans Pepper</i>	671
Periwinkle	248	Poplar	1120
<i>Pesilent-wort</i>	907	POP'ULUS	<i>ibid</i>
Pettigree	1132	Poppy	550
<i>Petty Muguet</i>	155	POTAMOGE'TON....	171
<i>Petty Whin</i>	759	POTENTIL'LA ...	531
<i>Petty Whin</i>	763	POTERIUM	1081
PEUCED'ANUM	284	<i>Pot Marjoram</i>	622
PHAL'ARIS.....	65	PRENAN'THES	836
Pheasant-eye.....	570	<i>Pricking large Sea Rush</i>	358
PELLAN'DRIUM	298	Pricklenep.....	268
PHLE'UM	61	<i>Prickly Glaswort</i>	258
PHYTEU'MA	220	<i>Prick Madam</i>	466
PI'CRIS.....	829	<i>Prick Timber</i>	160
Pignut	275	<i>Prick Timber Tree</i>	241
Pilewort.....	579	<i>Prickwood</i>	160
Pillis'	113	<i>Prickwood</i>	241
Pill-corn	<i>ibid</i>	Prim	7
Pimpernel	210	Primrose	202
<i>Pimpernel Rose</i>	523	<i>Primrose</i>	204
<i>Pimpernel water</i>	12	<i>Primrose roots</i>	424
PIMPINEL'LA	313	PRIMULA	202
PINGUIC'ULA	16	<i>Princes Feather</i>	432
Pink	440	<i>Privet</i>	7
<i>Pinus</i>	1092	<i>Privet</i>	<i>ibid</i>
<i>Pipperidge-bush</i>	366	PRUNEL'LA	631
Pipewort	1062	PRUNUS	506
<i>Piss-a-bed</i>	839	PULMONA'RIA.....	193
PISUM.....	766	<i>Purging Flax</i>	330
		Purple	

<i>Purple Birds-nest</i>	978	<i>RI'BES</i>	242
<i>Purple-flowered Moneywort</i>	211	<i>Ribgrafs</i>	144
<i>Purple-spiked Loofestriſe</i>	489	<i>Ribwort</i>	<i>ibid</i>
<i>Purple-spiked Willow-herb</i>	489	<i>Roan Tree</i>	513
<i>Purple Spurrey</i>	459	<i>Robin run in the Hedge</i>	604
<i>Purple Trefoil</i>	795	<i>Rock Crefs</i>	683
<i>Purſlane</i>	368	<i>Rocket</i>	716
<i>PY'ROLA</i>	429	<i>Roman Chamomile</i>	936
<i>PY'RUS</i>	516	<i>RO'SA</i>	520
<i>Quake-grafs</i>	92	<i>Rofa Solis</i>	331
<i>Queen of the Meadows</i>	519	<i>Rofe</i>	520
<i>QUER'CUS</i>	1083	<i>Rofebay</i>	212
<i>Quicken Tree</i>	513	<i>Rofebay Willowherb</i>	388
<i>Quick-in-hand</i>	962	<i>Rofe-root</i>	1124
<i>Quitch-grafs</i>	129	<i>Rofewort</i>	1123
<i>Radifh</i>	715	<i>ROTTBOL'LIA</i>	122
<i>Ragged Robin</i>	473	<i>Rough-headed Poppppy</i>	551
<i>Ragwort</i>	912	<i>Rough Succory Hawkweed</i>	855
<i>Rampion</i>	220	<i>Round-leaved Water Crow-</i> <i>foot</i>	574
<i>Ramſons</i>	345	<i>RU'BIA</i>	148
<i>RANUN'CUS</i>	571	<i>RU'BUS</i>	525
<i>Rape</i>	707	<i>Rue-weed</i>	568
<i>RAPH'ANUS</i>	715	<i>Rue Whitlowgrafs</i>	435
<i>Raſh-berries</i>	394	<i>RU'MEX</i>	369
<i>Raſpberry Buſh</i>	525	<i>RUP'PIA</i>	177
<i>Raſpis</i>	<i>ibid</i>	<i>Rupturewort</i>	250
<i>Rattle</i>	634	<i>RUS'CUS</i>	1132
<i>Ray-grafs</i>	121	<i>Ruſh</i>	358
<i>Red-flowered Wild Campion</i>	474	<i>Ruſhgrafs</i>	41
<i>Red German Catchfly</i>	<i>ibid</i>	<i>Rye-grafs</i>	121, 126
<i>Red Maithes</i>	571	<i>Sage</i>	21
<i>Red Morocco</i>	<i>ibid</i>	<i>SAG'INA</i>	169
<i>Red Poppy</i>	552	<i>SAGITTARIA</i>	1079
<i>Red-rot</i>	331	<i>Saffron</i>	37
<i>Redſhanks</i>	132	<i>Saintfoin</i>	785
<i>Red Whortle-berries</i>	395	<i>Salfern</i>	190
<i>Reed</i>	67, 85	<i>SALICOR'NIA</i>	3
<i>Reed</i>	116	<i>SA'LIX</i>	1099
<i>Reed Mace</i>	1022	<i>Sallow</i>	1106
<i>RESE'DA</i>	492	<i>Sallow-thorn</i>	1114
<i>Reſtharrow</i>	762	<i>Saſafy</i>	828
<i>RHAM'NUS</i>	239	<i>SAL'SOLA</i>	257
<i>RHINAN'THUS</i>	604	<i>Saltwort</i>	3
<i>RHODI'OLA</i>	1123		Salt-

Saltwort	246	Sea Cudweed	886
SAL'VIA	21	Sea Cushion	326
SAMBU'CUS	319	Sea Gilliflower	ibid
SAM'OLUS	221	Sea Grass	3
Samphire	286	Sea Hard Rush	359
Sandwort	458	Sea Matweed	119
SANGUISOR'BA	147	Sea Milkwort	246
Sanicle	266	Sea Purslane	1143
SANIC'ULA	266	Sea Starwort	915
Sanicle Yorkshire	16	Sea Wheat-grass	128
SANTOL'INA	886	Sea Wormwood	890
SAPONA'RIA	438	SE'DUM	464
Satyrian	979	Seg	1025
SATYR'IUM	ibid	Seggum	912
Sauce-alone	697	Self-heal	631
Saw-wort	865	SEL'NUM	280
SAXIF'RAGA	430	SEMPERVIVUM	501
Saxifrage	313	SENE'CIO	908
Saxifrage	430	Sengreen	404
SCABIO'SA	139	Septfoil	535
Scabious	139	SERA'PIAS	996
SCAN'DIX	303	SERRA'TULA	865
Sea Holly	264	Service	513
Sea Parsnep	268	SESLE'RIA	83
SCHÆ'NUS	41	Setterwort	582
SCIL'LA	348	Sharp-pointed Fluellin	646
SCIR'PUS	46	Sheeps-bit	948
SCLERAN'THUS	436	Sheeps Sorrell	376
Scorpiongrass	188	Shepherds-needle	303
Scotch Asphodel	377	Shepherds Pouch	676
Scottish Scurvygrass	214	Shepherds Purse	673
Scottish Sea Parsley	289	Shepherds Purse	676
Scrambling Rocket	695	Shepherds Rod	138
Scrooby Grass	678	Shepherds Staff	ibid
Scrogs	509	SHERAR'DIA	159
SCROPHULA'RIA	651	Shoreweed	1064
Scurvy-grass	677	Shrub Stone-crop	258
SCUTELLA'RIA	629	SIBBAL'DIA	334
Sea Buck-thorn	1115	SIBTHOR'PIA	655
Sea Bugloss	194	Sicklewort	589
Sea Cabbage	709	SILE'NE	448
Sea Colewort	214	Silverweed	334
Sea Colewort	709	Silverweed	532
Sea Colewort	719	Simplers Joy	595

<i>Simfon</i>	909	<i>Southernwood</i>	889
SINA'PIS	712	<i>Sowbane</i>	253
<i>Single-headed Thistle</i>	877	<i>Sowthistle</i>	831
<i>Single Red Pink</i>	441	<i>Sowthistle</i>	832
SI'SON	294	<i>Sparagus</i>	353
SISYM'BRIUM	690	SPARGA'NIUM	1023
SI'UM	291	SPAR'TIUM	756
<i>Skerret</i>	<i>ibid</i>	<i>Spattling Poppy</i>	446
<i>Skull-cap</i>	629	<i>Speedwell</i>	8
<i>Slender eared broad-leaved</i> <i>Cyperus-grass with ma-</i> <i>ny Spikes</i>	1047	<i>Sperage</i>	353
<i>Sloe Tree</i>	509	SPER'GULA	481
<i>Slons</i>	<i>ibid</i>	<i>Spicknel</i>	301
<i>Smallage</i>	315	<i>Spiderwort</i>	349
<i>Small Bistort</i>	407	<i>Spignel</i>	282
<i>Small Burnet Saxifrage</i>	313	<i>Spignel</i>	301
<i>Small Corn Champion</i>	448	<i>Spiked Water Milfoil</i>	1078
<i>Small Fleabane</i>	924	<i>Spindletree</i>	241
<i>Small Hedge Hyssop</i>	490	SPIRÆ'A	518
<i>Small Matweed</i>	54	<i>Spoonwort</i>	680
<i>Small Plymouth Rush grass</i>	50	<i>Spotted Arsmart</i>	411
<i>Small water Purslane</i>	131	<i>Spotted Lungwort</i>	194
<i>Small Swines Succory</i>	857	<i>Spring-grass</i>	26
<i>Small water Chickweed</i>	131	<i>Spurge</i>	494
<i>Smooth Succory Hawkweed</i>	854	<i>Spurge Flax</i>	402
SMYR'NIUM	310	<i>Spurge Laurel</i>	403
<i>Snake-head</i>	346	<i>Spurge Olive</i>	402
<i>Snakeweed</i>	406	<i>Spurrey</i>	481
<i>Snapdragon</i>	645	<i>Spurwort</i>	159
<i>Snapdragon</i>	650	<i>Squill</i>	348
<i>Sneeze-wort</i>	941	<i>Squinancy Berries</i>	243
<i>Snowdrop</i>	340	<i>Squinancy Wort</i>	159
<i>Soapwort</i>	438	<i>Squitch grass</i>	129
<i>Soft-grass</i>	1137	STA'CHYS	612
SOLA'NUM	235	STAPHYLE'A	321
SOLIDA'GO	917	<i>Star-grass</i>	4
<i>Solomons-seal</i>	353	<i>Star headed Water Chickweed</i>	4
<i>Solomons Seal</i>	355	<i>Star of the Earth</i>	145
SON'CHUS	831	<i>Star Thistle</i>	946
<i>Sorb</i>	511	<i>Star-wort</i>	915
<i>Sorb</i>	514	STAT'ICE	326
SOR'BUS	513	<i>St. Barnaby's Thistle</i>	947
<i>Sour Trefoil</i>	470	STELLA'RIA	454
		<i>St. James's Wort</i>	912
		<i>St. John's Wort</i>	812
		<i>St.</i>	

<i>St. John's Wort</i>	814	<i>Tare</i>	780
<i>Stinking Horehound</i>	616	<i>Tare Everlasting</i>	772
<i>Stinking May-weed</i>	939	<i>Tasselgrafs</i>	177
<i>Stinking Orache</i>	255	<i>Tassel Pondweed</i>	ibid
<i>Stinking Water Horsetail</i> 1016		TAX'US	1130
STIPA	111	<i>Teasel</i>	137
<i>Stitchwort</i>	454	TEU'CRUM	590
<i>Stock Bill</i>	730	THALIC'TRUM	568
<i>Stonecrop</i>	464	THE'SIUM	247
<i>Stonecrop</i>	467	<i>Thistle</i>	868
<i>Stonewort</i>	1015	<i>Thistle upon Thistle</i>	871
<i>St. Peter's-wort</i>	813	THLAS'PI	673
<i>Strangle Tare</i>	778, 781	<i>Thornapple</i>	230
<i>Strapwort</i>	322	<i>Thorny or prickly Samphire</i> 268	
STRATIO'TES	563	<i>Thorow-wax</i>	267
<i>Strawberry</i>	529	<i>Three faces under a hood</i> 958	
<i>Strawberry-tree</i>	427	<i>Thrift</i>	326
<i>Stubwort</i>	470	<i>Thrumwort</i>	380
SUBULA'RIA	667	<i>Thyme</i>	623
<i>Suffolk-grafs</i>	88	THY'MUS	623
<i>Sulphur-wort</i>	284	TIL'IA	556
<i>Sundew</i>	331	TILLÆ'A	132
<i>Sweet-briar</i>	521	<i>Timothy-grafs</i>	61
<i>Sweet-scented Chamomile</i> 936		<i>Tine</i>	781
<i>Sweet Cicely</i>	303	<i>Tine Tare</i>	ibid
<i>Sweet Cyperus</i>	45	TRAGOPO'GON ...	827
<i>Sweet Fennel</i>	311	<i>Travellers-joy</i>	567
<i>Sweet Fern</i>	303	<i>Treacle Mustard</i>	673
<i>Sweet Mountain Currants</i> 243		<i>Treacle Wormseed</i>	698
<i>Sweet smelling Flag</i>	357	<i>Tree Mallow</i>	743
<i>Sweet smelling Solomons- seal</i>	355	<i>Tree Sowthistle</i>	832
<i>Sweet Willow</i>	1116	<i>Trefoil</i>	790
<i>Sweet Wood Crowfoot</i> ...	573	TRIENTA'LIS	383
SWERT'IA	260	TRIFOLIUM	790
<i>Swines Cresses</i>	681	TRIGLO'CHIN	378
<i>Swines-eye</i>	856	<i>Triple Ladies Traces</i> ...	985
<i>Sycamore Tree</i>	1148	TRITICUM	128
SYM'PHYTUM	195	TROL'LIUS	580
<i>Tall Oat-grafs</i>	112	<i>Truelove</i>	416
TAM'US	1119	<i>True Service</i>	514
TANACE'TUM	887	<i>Toadflax</i>	649
<i>Tansy</i>	ibid	<i>Toadgrafs</i>	164
<i>Tare</i>	776	TOFIEL'DIA	377
		<i>Toothwort</i>	642

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TORDYL'IUM	269	Violet	952
<i>Tormentil</i>	535	Vipergrafs	199
Tormentil	536	Vipers Buglofs	200
TORMENTIL'LA	536	<i>Virgins Bower</i>	568
Touch-me-not	961	VIS'CUM	1112
<i>Tower Mustard</i>	704	<i>Wake Robin</i>	1012
Towerwort	ibid	<i>Wall Barley</i>	126
Tuberoot	379	<i>Wall Cress</i>	705
<i>Tuberous Moschatel</i>	418	<i>Wall flower</i>	699
<i>Tufted Horse-shoe Vetch</i>	784	<i>Wall Pennywort</i>	464
<i>Tunhoof</i>	604	<i>Wall Pepper</i>	467
Turkey-pod	701	<i>Wallwort</i>	319
Turneps	708	<i>Wart-wort</i>	497
TURRI'TIS	704	<i>Water Agrimony</i>	882
TUSSILA'GO	904	<i>Water Agrimony</i>	885
<i>Tutsan</i>	812	<i>Water Aloes</i>	564
Twayblade	983	<i>Water Avens</i>	538
<i>Twayblade</i>	987	<i>Water Betony</i>	653
TY'PHA	1021	<i>Water-can</i>	554
U'LEX	760	<i>Water-cress</i>	690
UL'MUS	258	<i>Water Cresses</i>	ibid
<i>Upright Blite</i>	256	<i>Water Crowfoot</i>	578
<i>Upright Water Parsnep</i>	292	<i>Water Dock</i>	374
URTI'CA	1069	<i>Water Elder</i>	319
UTRICULARIA	18	<i>Water fennel</i>	4
VACCIN'IUM	393	<i>Water flag</i>	39
VALANT'IA	1139	<i>Water Gilliflower</i>	207
Valerian	35	<i>Water Gladiole</i>	420
VALERIA'NA	ibid	<i>Water Gladiole</i>	951
VEL'LA	666	<i>Water Hemlock</i>	298
Velvet-leaf	743	<i>Water Hemp</i>	882
<i>Venus Comb</i>	304	<i>Water Hemp</i>	885
VERBAS'CUM	223	<i>Water Milfoil hooded</i>	19
VERBE'NA	594	<i>Water Pepper</i>	409
<i>Vernalgrafs</i>	25	<i>Water Plantain</i>	381
VERO'NICA	8	<i>Water Radish</i>	691
Vervain	594	<i>Water Rockett</i>	ibid
Vetch	774	<i>Water Socks</i>	555
<i>Vetch</i>	776	<i>Watersoldier</i>	563
<i>Vetchling</i>	769	<i>Water Star-wort</i>	4
VIBUR'NUM	318	<i>Water Trefoil</i>	206
VIC'IA	774	<i>Water Violet</i>	207
VIN'CA	248	<i>Waterwort</i>	418
VIOLA	952	<i>Water Yarrow</i>	207

Way

<i>Way bennett</i>	126	<i>Wild Rocket</i>	710
<i>Way bread</i>	143	<i>Wild Rosemary</i>	425
<i>Wayfaring Tree</i>	318	<i>Wild Rye</i>	126
<i>Way Thistle</i>	867	<i>Wild Service Tree</i>	511
<i>Weasle-Inout</i>	610	<i>Wild Spinage</i>	251
<i>Weld</i>	493	<i>Wild Succory</i>	863
<i>Welsh Speedwell</i>	9	<i>Wild Tansey</i>	532
<i>Welshed Thistle</i>	873	<i>Wild Tare</i>	78
<i>Wheat</i>	128	<i>Wild Thyme</i>	623
<i>White Beam-tree</i>	510	<i>Wild Vine</i>	1134
<i>White Bottle</i>	446	<i>Wild White Campion</i> ...	475
<i>White Dead Nettle</i>	605	<i>Wild Williams</i>	473
<i>White flowered Charlock</i>	716	<i>Wild Woad</i>	493
<i>White flowered Dogs Rose</i>	522	<i>Willow</i>	1099
<i>White flowered Rushgrafs</i>	44	<i>Willowherb</i>	387
<i>White Horehound</i>	617	<i>Wind Berries</i>	394
<i>White Ladies bedstraw</i> ...	156	<i>Winter Cresses</i>	696
<i>White rot</i>	265	<i>Wintergreen</i>	383
<i>White Saxifrage</i>	434	<i>Wintergreen</i>	429
<i>White thorn</i>	512	<i>Winter Marjoram</i>	622
<i>White Water Lily</i>	555	<i>Winter Rockett</i>	696
<i>Whitlow-grafs</i>	668	<i>Woad</i>	717
<i>Whortle</i>	393	<i>Wolds</i>	493
<i>Wild Basil</i>	620, 625	<i>Wolfsbane</i>	926
<i>Wild Briar</i>	523, 524	<i>Wood Betony</i>	612
<i>Wild Burnet</i>	148	<i>Woodbine</i>	222
<i>Wild Carline Thistle</i>	881	<i>Woodroose</i>	158
<i>Wild Cheir</i>	699	<i>Woodrow</i>	ibid
<i>Wild Chervil</i>	307	<i>Woodrowel</i>	ibid
<i>Wild Cicely</i>	ibid	<i>Woodruff</i>	ibid
<i>Wild Cichory</i>	863	<i>Wood Sage</i>	591
<i>Wild Cluster Cherry</i> ...	506	<i>Wood Sorrel</i>	470
<i>Wilding</i>	517	<i>Wood Strawberry</i>	530
<i>Wild Lettuce</i>	835	<i>Wood Waxen</i>	758
<i>Wild Liquorice</i>	787	<i>Wormseed</i>	695
<i>Wild Madder</i>	156	<i>Wormwood</i>	890
<i>Wild Marjoram</i>	622	<i>Wounds</i>	493
<i>Wild Milky Parsley</i>	282	<i>Woundwort</i>	612
<i>Wild Mustard</i>	713	<i>Woundwort</i>	918
<i>Wild Navew</i>	707	<i>Wych Hasel</i>	259
<i>Wild Oatgrafs</i>	121	<i>Wych Hasel</i>	1089
<i>Wild Parsley</i>	282	<i>Wymote</i>	735
<i>Wild Pear Tree</i>	510	<i>XANTHIUM</i>	1073
<i>Wild Poppy</i>	553	<i>Yarrow</i>	940

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<i>Yarrow</i>	942	<i>Yellow Rattle</i>	635
<i>Yellow Archangel</i>	611	<i>Yellow Succory</i>	830
<i>Yellow Dead Nettle</i>	ibid	<i>Yellow Water Lily</i>	554
<i>Yellow Devilslit</i>	841	<i>Yellow-weed</i>	492
<i>Yellow Goats-beard</i>	828	<i>Yellow Willowherb</i>	208
<i>Yellow horned Poppy</i>	548	<i>Yellow-wort</i>	392
<i>Yellow Ladies bedstraw</i> ..	155	<i>Yew</i>	1130
<i>Yellow Medic's</i>	807	<i>Yew Tree</i>	ibid
<i>Yellow Moth Mullein</i>	229	<i>Youthwort</i>	331
<i>Yellow Orchis</i>	991	ZANNICHEL'LIA	1013
<i>Yellow Pansies</i>	960	ZOSTERA	1004
<i>Yellow Pimpernel of the</i> <i>Woods</i>	209		

ERRATA in the LATIN TERMS.

Page lxxxiv. For *Amplexica'ulis*, read, *Amplexicau'lis*.
 For *Anoma'la*, read, *Anom'ala*.

P R E F A C E

TO THE

THIRD VOLUME.

THE Author has often regretted, that the publication of this last part of the Botanical Arrangement, should have been delayed so greatly beyond the time he had fixed for its appearance, and he takes this opportunity to thank the writers of several letters he has received on that account, for the attention they have bestowed upon the work ; for whether these letters were merely civil enquiries, or polite and encouraging addresses, or churlish and chiding remonstrances, he is sensible that the writers, whether avowed or anonymous, had only in view to urge him to finish the undertaking. This he has now done, and if not sooner done, the delay was

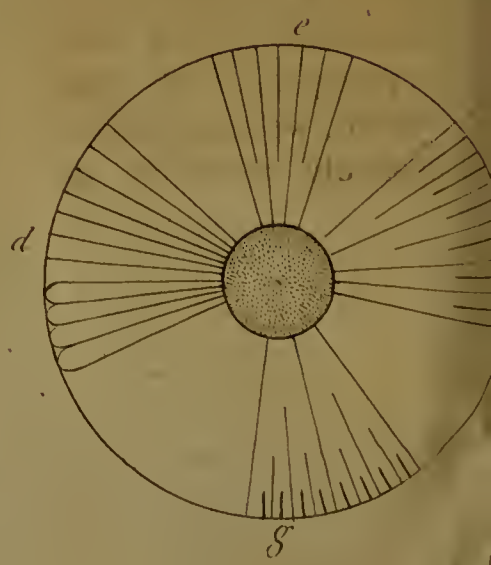
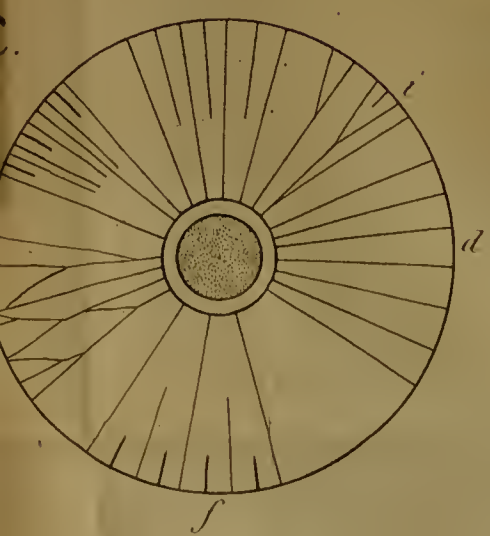
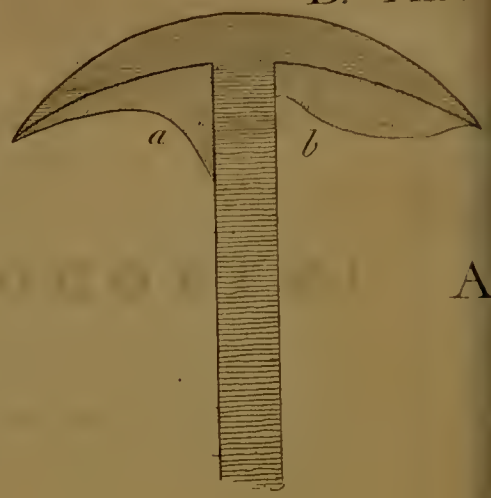
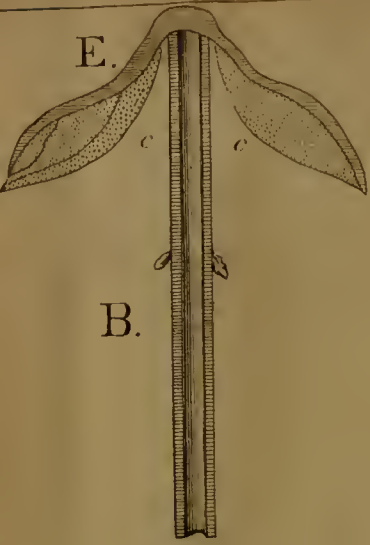
P R E F A C E.

not caused by want of encouragement or inclination, but by an unsettled state of health, and a variety of other unforeseen circumstances which it would be useless now to mention. However, when the execution comes to be examined, he hopes the public will not decide that he has idly trespassed upon its patience.

EDGBASTON, 27th August,
1792.

INTRO-

THE
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INTRODUCTION

TO THE

THIRD VOLUME.

IT is well understood that the attentions of Linnæus were much less engaged by the Class Cryptogamia, than by the other Classes which are formed of plants with more obvious fructifications. It was his glory to have established a System upon the organs of Generation, (the Chives and Pointals,) of all others the most essential parts of a plant, and this System he has wrought up to such a state of perfection, that little, compared to what he himself has done, remains for his successors to do, except the additions it may receive from more extended researches in countries imperfectly, or not at all explored before. But the plants of the Cryptogamia Class, not falling under his peculiar System, were to him less interesting, and therefore, probably, were less attended to. Of the four natural Orders which compose this Class, he seems chiefly to have improved our knowledge of the FILICES. The MUSCI and the ALGÆ had been
fo

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so successfully explored and so excellently figured by Micheli and Dillenius; and Gmelin having nearly exhausted the subject of the Fuci, there remained in these extensive Tribes but little more for Linnæus to do, than to distribute and characterise them according to his own ideas. The FUNGI, at one time, attracted his attention, but the difficulty of preserving them in a state fit for comparing together, and the impracticability of transporting his books along with himself in his various journies, seem to have checked his pursuits; neither could he benefit, as we now do, by the almost innumerable figures which have been published since the formation of his System. From these causes he has done but little in the Fungi, and that little has been ill understood. Our countryman, the excellent RAY, paid great attention to these subjects, but for want of figures, or more extended descriptions, it is often difficult, sometimes impossible, to determine his species. When the admirable plates, and still more admirable descriptions of SCHÆFFER were published, and the world benefitted by the labours of BATTARRA, and the immortal HALLER, the subject of the Fungi began to assume a more intelligible form. This branch of science has since been cultivated with great ardour and success by Mr. Hudson, Mr. Lightfoot, and Mr. Dickson, in this country, as well as by a number of learned men abroad; but to enter upon a history of the improvements which have been made within the last twenty years, would, however grateful the task, be inconsistent with the limits of this introduction, which is written merely with a view to point out to the reader

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reader the design of the present volume. It would, however, be unpardonable, were he to conclude this paragraph, without recommending the plates of our ingenious countryman, Mr. Bolton, and the still more extensive designs of M. Bulliard, satisfied as he is, that their excellent figures will greatly promote the object he has in view. Perhaps too he cannot find a more convenient opportunity than the present, thus publicly to express his acknowledgments for the very kind and liberal assistance he has received from the voluntary contributions of many ingenious and learned Botanists, more particularly from Major Velley in the Fuci, Mr. Stackhouse in the Fungi, and Mr. Woodward in every part of the work; but as the aid afforded by his numerous friends, is always acknowledged wherever it has been adopted, it is the less necessary to be more particular in this place.

In the extensive Genera of Bryum, Hypnum, Jungermannia, and Lichen, all the Linnæan subdivisions are retained; but to facilitate the reference to the species, the individuals of each subdivision are placed alphabetically. Let experience decide whether this method, by saving time, and labour, will not more than compensate for any imaginary or real relationship as yet established between the individuals of these numerous families. It will readily be allowed that where a full acquaintance with the subject, enables us to place the connecting links in these extended chains, in their proper order of mutual relationship, there the alphabetical order is inadmissible; it is not
the

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the order of science; but in the present state of our knowledge, the young Student at least will find an advantage in this plan, and the more experienced, or more learned Botanist must be as sensible as the author is, that the time is not far distant, when the whole of the present structure must give way, and these enormous masses be broken down, and replaced in a more lucid order and a more proportionate distribution. This reform must be expected from the labours of the illustrious HEDWIG, the outline of whose discoveries will now, for the first time, be made known to the English reader. The Author of this work much wished to have adopted his Genera, and to have arranged the Mosses, the Lichens, &c. in conformity with his discoveries, but the task would have been too extensive for his leisure, and possibly too great for his abilities.

It has been said before, that we are indebted for the knowledge we have of the Mosses, the Lichens, and most of the other Genera of the Algæ, to the indefatigable industry of Dillenius, and the sagacious scrutiny of Micheli, from these authors therefore, as well as from the *Historia Fucorum* of Gmelin, the reader will find the most important parts of the descriptions extracted. These he thinks must be particularly acceptable, not only because none can be expected to describe these plants better than those who have figured them so well, but also on account of the great scarcity of the original work of Dillenius, which few are so happy to possess. The copies printed were only 250, and of these, but few remain in England.

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England. Impressions of his plates are easily obtained, and the scarcity of the letter-press will hereafter, in this country, be the less regretted. Nor have the labours of Jacquin, or Hoffman, of Wiegel or of Batsch, of Pollich or of Weis, been neglected; they and several others now contribute occasionally to the illustration of the species, and to the instruction of the English Botanist. It must be observed that on these occasions, the Author has not aimed at a literal translation; he has endeavoured to catch the ideas of the writers, and to communicate them to his readers in as small a compass as the English language would well permit. It will be evident, that in choosing this method, his own ease was not the object he consulted.

But it is time that he draw the attention of his readers to the Fungi, and more particularly to the Agarics and the Boleti, a numerous and beautiful tribe of plants, which he flatters himself with having rendered as easy of investigation, as those of any other part of the Botanic System. Should it appear that he has done much more on these subjects than his predecessors or contemporaries, he wishes it to be understood, that his situation is peculiarly favourable to their growth, and that having discovered a method of preserving † them for a length of time, in such perfection as to admit

† This method will shortly be communicated to the public; it is only delayed on account of some further experiments now making with a view to preserve the more tender colours.

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admit of examination and comparifon, he has been enabled to defcribe them more fully, and to characterife them more accurately, than had been done before, according to a Syftem which prefented itfelf to his mind upon a compréhensive and attentive view of the whole fubject.

This Syftem muft now be explained, and by the aid of Plate XIX. the reader will readily underftand it.

AGARICS are compofed of a Cap, or PILEUS with GILLS underneath, and have either Stems, or no Stems.

The STEMS are either central or lateral; hence arife 3 primary divifions of the Genus, already in ufe, and adopted by Linnæus.

- A. Stems central.
- B. Stems lateral.
- C. Stemlefs.

They have alfo a ROOT, more or lefs obvious, and fome of them, in a yet unfolded ftate, are wholly inclofed in a membranaceous or leathery café; called a WRAPPER. Some of them have a CURTAIN, or thin membrane, extending from the Stem to the edge of the Pileus; this Curtain tears as the Pileus expands, and foon vanifhes; but the part attached to the ftem often remains, forming a Ring round it. This RING is more or lefs permanent, as its fubftance is more or lefs tender, but fome of the fpecies appear fome years with,
and

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and other years without a Ring, † so that though it forms a very obvious character, it cannot be admitted as a ground of specific distinction.

Pl. 19. fig. (F.) (borrowed from M. Bulliard,) shews a vertical section of an Agaric of the more compleat kind, in its egg state, in order to demonstrate all the parts mentioned above.—(m. m. m. m.) the Wrapper.—(n. n.) the Pileus.—(o. o.) the Gills.—(p.) the Stem, before it shoots up.—(q. q.) the Curtain. On the section of a Stem at (B.) may be seen the remains of a Curtain, then called a Ring. The Curtain and the Ring must be rejected in forming characters of Agarics, for the reason just now mentioned, and the Wrapper is not easily accessible, nor is it very often found, so that it does not afford much aid in the discrimination of the species. The Curtain and its remnant the Ring, are common to all our secondary sub-divisions of Agarics with central Stems, but the Wrapper seems to be confined to the plants with solid Stems only, nor has it been found attendant even upon those when the Gills are decurrent.

The STEM of an Agaric is either solid, or hollow. The *solid* Stem is represented at (A.) the *hollow* Stem at (B.) When an Agaric is to be examined, cut the Stem across, about its middle, with a sharp knife, and it must immediately appear whether it be solid or hollow. Let it be remarked, however, that

† e. g. *Ag. æruginosus*. (See page 365.)

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that the *solid* Stem varies much in degree; it may be as solid as the flesh of an apple, or as spongy as the pith of an elder stick, or a sun-flower stalk, but still it is solid, *i. e.* there is no regular hollow pervading its whole length; though the more spongy and larger Stems sometimes shew irregular and partial hollow places from the shrinking of the pithy substance when the plant grows old, but this can never be mistaken for a regular, uniform, and native hollowness. (B.) represents a *hollow* Stem. The width of this hollow part varies much in different species, and is by no means always proportioned to the size of the Stem; though it is uniform and regular throughout its whole length, except perhaps at the very bottom, where it changes to a root. This hollow is sometimes entirely empty, sometimes loosely filled with a pithy substance, but its regularity is not affected by that circumstance. Next to the Gills, the Stem of an Agaric is the part least liable to variation. When its shape is not that of a cylinder, its diameter, as expressed in the descriptions, must be understood to be the diameter of its middle part.

The GILLS are the flat, thin substances, found underneath the Pileus, and attached to it; they are of a texture evidently different from that of the Stem or the Pileus, they assume different colours in different species, and vary much in their respective lengths. Each Gill consists of two membranes, and between these the Seeds are formed. The Gills are always attached to the Pileus, and sometimes to that only, as at fig. (E. c. c.) They often shoulder up against the Stem, and are *fixed*

to

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to it, as at fig. (A. b) and frequently they are not merely *fixed* to the Stem, but extended along it, downwards, as at (a) in the last-mentioned figure. This is what we shall call a *decurrent* Gill. The *fixed* and *decurrent* Gills are attached to the Stem *only by their ends* which are next to the center of the Pileus, not by their edges, as is sometimes the case in some of the Agarics whose Pilei or Caps are nearly cylindrical. In some of these the edges of the Gills are pressed close to the Stem, and even adhere to it more or less in the young state of the plant, but separate before it attains its full expansion. This therefore is a very different kind of attachment to that which we mean to express by the terms *fixed* or *decurrent*.

Our secondary sub-divisions of the Agarics, are founded upon what has been just now explained, and are follows : —

- | | | |
|--------------|---|---------------------|
| STEM solid; | { | 1. GILLS decurrent. |
| | | 2. GILLS fixed. |
| | | 3. GILLS loose. |
| STEM hollow; | { | 4. GILLS decurrent. |
| | | 5. GILLS fixed. |
| | | 6. GILLS loose. |

But the GILLS containing the fructification of these plants, are of the utmost importance, and therefore demand more particular notice. They vary very much in length, for though they all extend to the edge of the Pileus, they do not, except in a few instances, all reach to the Stem; moreover they are sometimes forked or divided,

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and sometimes connected or anastomosing one with another. All these circumstances are explained by the two circular figures at the bottom of Plate XIX. — thus :

(d.) Gills uniform. These uniform Gills sometimes seem connected together at the edge of the Pileus, as represented below (d.)

(e.) Gills in pairs.

(f.) Gills 4 in a set.

(g.) Gills 8 in a set.

(h.) Gills irregular, that is, no determinate number in a set.

(i.) Gills branching.

(k.) Gills branching and anastomosing.

C. Gills *loose* from the Stem, but the inner end fixed to a Collar which surrounds the top of the Stem, though not in contact with it.

These various circumstances of the Gills seem at first sight well adapted for sub-divisions of the species, and also for the formation of specific characters; but they are so much subject to variation that no use can be made of them for either purpose. Thus, the Gills called *uniform*, are seldom strictly so, a shorter Gill now and then intervening. The Gills *in pairs*, have place only in a few species, and are subject to vary; the Gills 4 *in a set*, occupy by far the greater part of the species, and those which have 4 in a set in the younger plants, are very apt to shew 8 when more fully expanded, some of the longer Gills tearing from the Stem. Moreover, though 4 in a set be the predominant number in many of these plants, we often find

but

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but three, or even two, owing to the absence of one or more of the smaller Gills. The *colour* of the Gills is fortunately an obvious, and at the same time a *permanent* circumstance; and when we reflect, that their colour is principally, if not solely, caused by that of the Fructifications or Seeds within them, we might (*a priori*) have expected, what experience has taught me to be the case, that this is the most fixed, the most certain characteristic on which to found the distinctions of the species; and that this, together with the structure, will be at all times sufficient to afford permanent specific distinctions. It is allowed that these colours change when the plant begins to decay, but no Botanist would complain that the characters are wanting in a subject collected in a rotten state. The colour of the *flat* sides of the Gills is what I wish to be attended to, because the colour at the edge, in some plants, is different, through all the stages of growth, and in others it changes sooner than that of the sides, evidently from the discharge of the Seeds when ripe. The colour of the whole of the Gill being sometimes influenced by the ripened Seeds, it is clear that this colour ought to be described, where it is liable to such a change, not only in the perfect and vigorous state of the plant, but also in its mature and nearly decaying state, taking its character from the former. Thus in several of the deliquescent Agarics, especially such as dissolve in decay to an inky liquor, the plants when very young have white Gills; these become *grey* when the Seeds are formed, and black when quite ripe, and the plant dissolves in decay. These circumstances may be properly noticed in the history of the plant, but

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no one would think of taking its character from its yet but half unfolded state, any more than from its state of decay; such a plant therefore must be placed amongst others whose Gills are *grey*.

The *STEM* is a less variable part than the *Pileus*; its shape, the proportions of its length to its breadth, and of both to the *Pileus*, afford tolerable distinctive marks, and its colours, though more changeable than those of the Gills, are perhaps rather more fixed than those of the *Pileus*.

The *PILEUS*, or Cap, is the part of an Agaric the last to be attended to, and the least to be depended on. Its shape is either conical, convex, flat, or hollowed at the top like a funnel;† it is constantly varying in the same plant, but is pretty uniformly the same in the same species when the plant is in perfection, that is, when fully or nearly fully expanded, but before it exhibits symptoms of decay.

The *colour* of the *Pileus* is often extremely uncertain, and in that case can no further be admitted into a character, than as it may serve to mark the varieties.

The *Viscidit*y, or clamminess on the surface of the *Pileus* and *Stem*, frequently observed in some Agarics, has been made a part of their character; but it is not much to be depended on; for in dry weather some of the viscid species shew no symptom

† (E.) represents a conical, (D.) a convex *Pileus*.

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tom of a moist or even adhesive surface, and in a moist atmosphere, many, at other times dry to the feel, become more or less viscid.

The *Lactescens*, or milky juiced Agarics, at one time seemed to force themselves into observation, as laying claim to a well-founded sub-division; but further experience demonstrated, that neither those with a mild, nor those with an acrid milky juice, were invariably milky. This was an unexpected circumstance, nor does it yet appear upon what it depends. Plants apparently healthy and vigorous shall shew no signs of milk when wounded, whilst others on the same spot, and at the same time, shall pour out their milk in abundance. It must be acknowledged, that this difference is not very common, but it certainly does take place. †

Such are the grounds of the present attempt to reduce the Agarics to a System; an attempt, which if established, will greatly facilitate the investigation of the species, and if it fail to merit the countenance of the public, will probably give birth to another and a better.

The Author is sensible, that some of the specific characters may be thought too long, whilst a few may be found too short; but these cannot be ultimately adjusted until the discovery of new species shall

† The *Agaricus rubescens*, and *Agaricus cæfareus*, are instances of this kind of deviation.

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shall cease. That many new ones still remain to be ascertained, is highly probable, since so many have occurred within his own observation, and that of his correspondents.

A few, and only a few exceptions have occurred to the general laws of the System; and it will be right to mention them here. The *Agaricus velutipes*, p. 391, and the *Ag. sulcatus*, p. 344, have such a striking resemblance, that they must be pronounced to be the same, were not the Stem *hollow* in the one, and *solid* in the other. Can such a difference of structure be supposed to exist in the same species? If this question be answered in the affirmative, the exception must be allowed, and extended to one or two more of the minuter species. The other exception depends upon the different colours of the Gills of the *Agaricus aurantius*. This sportive species disdains the rules of the System, and exists under almost every kind of colour that can be imagined; the chief variations however, to obviate difficulties, are inserted where the investigating Botanist would be led to look for them.

In the execution of the preceding plan, the references to figures are not very numerous, because peculiar care has been taken to avoid doubtful references. What use can there be in the insertion of a figure or a synonym with a note of interrogation at the end of it? If the Author, with all his attention collected upon the subject, and possibly with the plant before him, cannot decide, why perplex his readers by desiring them to do it? In some cases

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cases it may be useful to refer to a figure which it is well known was not drawn for the plant in question. Thus when a new species occurs, or one which has never yet been figured, a reference to a drawing which resembles it in size, and in habit, may be useful, if care be taken to announce the circumstance, and to point out the dissimilarities.

The reader will find, on turning to other authors, that a number of references to the species before known, are omitted in this work; but he is not hastily to conclude that this has been in consequence of careless inattention. He may be assured that they have been examined, and are not omitted without a cause. Sometimes circumstances made it necessary more directly to point out these errors, but it was an invidious task; and believing, that notwithstanding his utmost care, the present work will still be liable to errors of the same nature, he has felt unwilling to censure his predecessors, to whose labours he should have thought himself greatly indebted, even were their errors ten fold what they are.

The specific character of LINNÆUS is always added, where no doubt existed of the identity of the species, and it was the Author's wish to have quoted all the Agarics of Mr. RAY under their proper heads, but the want of figures, and the brevity of the descriptions, deterred him from assigning a place to many of them. Here it may be observed, that where the descriptions of that admirable Botanist are sufficiently full, or where
he

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he could refer to a figure, the Agarics of the present day appear to be precisely what their predecessors were a hundred years ago. This it was thought necessary to remark, to quiet the apprehensions of some who have been deterred from the study of these subjects, by a prevalent idea that they were forever changing, and were consequently incapable of any fixed or settled character. It would not be difficult to point out the origin of this opinion, but it is sufficient to say that it is not true, and that no part of the Vegetable System is less liable to change, or more steady to the rules of a well formed method than the Agarics are.

It must however, be allowed, that new species of Fungi are daily discovered; but this may be owing partly to the greater attention that has of late been bestowed upon these subjects, and partly as Major VELLEZ supposes, to the introduction of so many exotic trees.

It remains now only to speak of the trivial names. This has been a much more arduous labour than can well be imagined. Much of the difficulties of Botanists, and many of the confusions of writers, have been owing to the application of different names to the same species, or of the same name to different species. The extent of this evil is hardly credible. Some species have six or eight different names, given by as many different authors, and in several instances the same name has been applied to ten or a dozen different plants. Surely it is time to put a stop to this useless increase of difficulties. In the
execution

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execution of this work, the following rules have been adopted.

- 1st. When a well known species occurs, to continue the name given it by its first inventor, unless obviously and highly improper, or unless a long continued attachment to another name had quite superseded the use of the former, or unless the former name had been previously appropriated to another species.
- 2d. Never to change a name adopted by Linnæus, except where his name included more than one species, and then to assign it to that which he has more particularly described.
- 3d. In naming a non-descript species, to use the most appropriate term that occurs, provided it be such as has not before been attached to any well established species.

The discoverer of a new species may find some trouble in complying with these rules, but he will be rewarded by considering, how much more trouble he will save to others, and how much his fellow labourers in the science will feel themselves obliged by his attentions.

The Genus *BOLETUS*, and the other Genera of the order of *FUNGI*, require no particular explanation. for the System adopted in the *Agarics* has been applied to them, as far as it was applicable, and imperfect as our knowledge of these plants at present is, such is the ardour of numbers in enquiries

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enquiries concerning them, that we may soon expect to strike out more perfect characters of the Genera, as well as a more judicious distribution of the species.

In every part of natural history, two modes of arrangement may be devised, the one, best calculated to facilitate the investigation of each species and variety, and therefore more convenient to the practical Student, the other better suited to the contemplative mind, which dwells with pleasure on the groupes or assemblages called natural Orders, and from the comprehensive views which this mode of distribution affords, generalises detached facts, and catches a glimpse of the laws by which the universe was created. But this mode of grouping natural assemblages is also applicable, as it were on a smaller scale, to break down the larger masses into other groups, whose more intimate relationships are marked by secondary characters. This has been attempted, as far as the Agarics are concerned, by Mr. STACKHOUSE, and he has been prevailed upon to allow the publication of the following synoptic view, which the reader will perceive was drawn up without any reference to the present work, therefore less perfect than it might be made, but still sufficient to convey an idea of the intended mode of distribution.

F U N G I. (A G A R I C I.)

A. Stipitati.

LACTESCENTES.

- N.
1. Deliciosus. Schæff. Hudf. Lightfoot.
 2. Lactifluus. Linn. Schæff. Hudf. Bolt.
 3. Ruber. Schæff. t. 5. Bauh. quoted by Hudf. 2d ed.
 4. Piperatus. Linn. &c. &c. Var. 1. lamell. incarnatis. Var. 2. lutescens.
 5. Dulcis. Hudf. Lightf. Ray. n. 15.
 6. Cinereus. Ray. n. 48.
 7. Necator. Bull. Schæff.
 8. Hydrogala. my. n. 197. B.

NON LACTESCENTES.

1. *Lamellis patulis.*

— *equalibus.*

9. Integer. Linn. &c. &c.
10. Muscarius. Linn. &c. &c. Var. verrucis albis. Var. — nigris.
11. Lacteus. Hudf.
12. Trilobus. Bolt.

— *inæqualibus.*

Carnosi.

13. Campestris. Var. 1. white Gills. Ray. 22.
2. Georgii. Bauh.
3. minor latus.
14. Latus. Bolton. Xerampelinus. Dixon. St.
15. Lividus. Schæff. Ray.
16. Violaceus. Hudf. Schæff. Ray. 13. 25.

17. Aurantius. Schæff. Ray. n. 35.

18. Carnofus. Curtis.
19. Mammofus. Linn. Hudf.
20. Adnatus. Hudf. Schæff. t. 210. Curtis. viscidus.
21. Pompatus. Bolton.
22. Elasticus. Do.
23. Lateralis. Do.
24. Politus. Do.
25. Castaneus. Do.
26. Plumbeus. Schæff.

Excarnes.

27. Pratenfis. Lightfoot's cor.
28. Viridis. Schæff. Bolt. Ray. Hudf.
29. Caryophyllæus. Schæff.
30. Alliatus.
31. Amethistinus. Hudf. Lightfoot.
32. Viscidus. Linn. Hudf. Stackhouse n. 104. B.
33. Equestris. Linn. Hudf. Ray 41.
34. Fuscus. Fl. Dan. 1010.
35. Ochraceus. Schæff. Bull.
36. Carneus. n. 115. A. B. C. Stackhouse.
37. Fuliginofus. Hudf. Lightf. Bolt. Schæff.
38. Rubeus. Bolt. Bull.
39. Membranaceus. Bolt. Fl. Dan.
40. Irregularis. Bolt.
41. Repandus. Bolt. Bull.
42. Plumofus. Bolt. Bull.

Lamellis demissis.

— *integris.*

43. Fimitarius. Schæff. Hudf. Bolton. Fl. Dan.

44. Ex-

F U N G I. (A G A R I C I.)

44. Extinctorius. Linn. Hudf.
Lightf. Bull.

45. — Procerus. Ray.

46. Luridus. Bolt. (rejected
by you.)

47. Domesticus. Bolt. Battar.

— *inæqualibus*.

48. Annulatus. Lightf. Ray.
Schæff. Stackhouse. 56.

49. Clypeatus. Hudf. Lightf.
R. Syn. n. 29.

50. Cristatus. Bolt. St. n. 49.

51. Rigidus. Bolt. Schæff.

Lamellis decurrentibus.

Venosi.

52. Cantharellus. Linnæus.
Hudf. Lightf.

53. Infundibuliformis. Bolt.
Bull. Battar.

Lamellis inæqualibus.

54. Umbilicatus. Bolton.
Schæff. Stackh. n. 66.

55. Rutilus. Schæff. St. n. 51.

56. Collinus. Schæff. R. Syn.
n. 31.

57. Mollis. Bolt. Bull. Schæff.

Fasciculati.

Lam. integris.

58. Confertus. Bolt. (rejected
by you.)

— *inæqualibus*.

59. Fascicularis. Huds. &c. &c.

60. Fasciculofus, Ray n. 51.
Curtis velutipes.

61. Floccofus. Schæff. Curt.
Stackhouse. n. 107.

62. Conicus. Huds. Schæff.

63. Flabilliformis. Schæff.
Lightf. femipetiolatus.

64. Laricinus. Bolt. Battar.

65. Annularius. St. n. 105.

66. Flexuosus. Stackhouse.

67. Expansus. Stackhouse.

Nani.

Stipite longo.

68. Campanulatus, Linn.

Huds. Stackh. n. 122.

69. Androfaceus, Huds. Ray
Lightf. Schæff. Vaill.

70. Clavus. Huds. Bolton.
Schæff. Vaill.

71. Filopes. Bull. Bolt. Fl.
dan.

72. Capillaris. Stackh. n. 82.

73. Pilosus. Huds.

— *brevi.*

74. Minutulus. n. 1.

75. Fragilis. Linn. Huds.

76. Umbiliferus. Linn. Huds.
Ray.

77. Eburneus. Bolt. n. 15.
Stackhouse.

78. Luteo-albus do.

79. Tortilis. do.

80. Cœspitosus. do.

81. Purpureus. do.

82. Vernus. R. syn. 43.

83. Striatus. R. syn. n. 53.
Stackh. n. 13.

84. Bulbo-fellus, (an unique
on a stem of grass. n.
125. Stackh.)

B. Acaulis.

85. Palmatus. Bull. St. 1. 116.

86. Quercinus. Linn. &c.

87. Pectinatus. Huds.

88. Betulinus. do.

89. Alneus. do. St. n. 30.
Lightfoot.

90. Osfreatus. Curtis.

91. Fœtidus. St. n. 106.

92. Sessilis. Bull. St. n. 109.

Class

Class XXIV.

CRYPTOGAMIA.

FLOWERS INCONSPICUOUS.

UNDER this Class are arranged a number of Vegetables whose Flowers are either but little known, or whose Chives and Pointals are too minute to admit of that mode of investigation which prevails through the twenty-three Classes preceding. The structure too of these Vegetables differs considerably from that of other plants. They are divided into four Natural Orders, viz. **FILICES**, (FERNS;) **MUS'CI**, (MOSESSES,) **AL'GÆ**, (THONGS;) and **FUN'GI**, (FUNGUSSES.)

FILICES. Ferns.

The plants of this order sometimes have their flowers in spikes, as in the *EQUISETUM*, (plate I. A.) but they are generally disposed in spots or lines on the under surface of the leaves, as in the *ASPENIUM*, (plate I. B.)

EMPAL. a scale, springing out of the leaf; opening on one side. Underneath this scale, supported upon little foot-stalks, are

GLOBES, encompassed by an elastic ring, which burst with violence, and scatter a powder.

Obs. The seed-vessels on the under surface of the leaves are covered by a very fine, thin, semi-transparent skin, which bursts open before the seeds ripen. The seed-vessels themselves are composed of three parts. *First*, a little fruit-stalk, by means of which they are connected with the surface of the leaf. *Second*, a globular Capsule standing
Vol. III. B upon

upon the fruit-stalk. *Third*, an elastic cord, fixed to the top of the fruit-stalk and surrounding the Capsule. When the Seeds are ripe, the cord endeavours to become straight, and; by its elasticity, tears open the Capsule. The Capsule opens like that of the *ANAGALLIS*, as if it had been cut round with a knife, forming two hollow hemispherical caps. The elastic force which tears it open, disperses the seeds abroad. These are so minute as hardly to be visible to the naked eye. In the months of September and October this curious mechanism is very evident in the Common Brakes (*PTERIS*,) or in the Harts-tongue, (*ASPLENIUM* *Scolop.*) by the assistance of a good single Microscope with a reflecting Speculum. The sudden jerk of the springing cord frequently carries the object out of the field of view, so that it requires some patience to observe the whole of the process.

As there are no certain distinctions in the Flowers themselves sufficient to establish the Genera, these are known by the disposition of the seeds under their covers.

But in bringing my readers to an acquaintance with this Class, it would be unpardonable to make no mention of the illustrious *HEDWIG*, who has immortalized his name by the accuracy of his researches, and the splendor of his discoveries, in these obscure families of plants. He communicated the result of his observations to the Academy of Sciences at Petersburg, in the year 1783.* As this work is but little known to the English Botanist, I shall subjoin the following compendious view of the subject, confining myself principally to the discoveries more immediately relating to the parts of fructification. Those who wish for further information, cannot fail of being highly gratified by an examination of the original work, and by a perusal of this very ingenious author's subsequent publications.

He introduces his subject with an account of the views of his predecessors in this branch of Natural History, and though he mentions the mistakes in which many of them had been involved, he does ample justice to those who had anticipated him in any part of his discoveries.

* See *Theoria Generationis et Fructificationis plantarum Cryptogamicarum* Linnæi. — Petropoli. 1784. quarto.

FI'LICES. Ferns.

§ 1. *With a club-shaped fructification.*

EQUISETUM. HEDWIG illustrates the structure of this Genus by a particular examination of the *EQUISETUM sylvaticum*, and *E. palustre*. The former, as well as the *E. arvense*, protrudes its club-shaped head out of the earth early in the spring. Round this head are placed, in circles, target-shaped substances, each supported on a pedicle, and compressed into angles in consequence of resting against each other previous to the expansion of the spike. Beneath each of these targets we find from 4 to 7 conical substances, with their points leaning a little inwards towards the pedicle. They open on the inner side, and upon shaking them over a piece of paper a greenish powdery mass falls out, which at first is full of motion, but soon after looks like cotton or tow. So far may be discerned by the naked eye, but a good Microscope discovers green oval bodies, and attached to each of them, generally 4 pellucid and very slender threads, spoonshaped at the end. These are almost constantly in motion, contracting upon the least breath of moist air, and when wet with water rolling round the oval body.

Pl. xiii. f. 1.

e. f.

fig. 2. f.

f. 3. 4.

f. 5.

f. 6.

In the *Equisetum palustre* the threads are broader, and the green oval or globular substance more pointed. This is undoubtedly the *Seed*, for it gradually increases in bulk, and when it falls, the spike shrivels. Its projecting point is the *Summit*, and the conical substances under the targets are the capsules.

The scales which surround the flowering stalk at certain distances after its protrusion, served whilst it was yet young, as a general fence to the spike.

Hence it appears that the genus *EQUISETUM* contains both Chives and Pointals within the same Empalement.

The flowering *Spike*, or general empalement, scaly and tiled; the partial empalement target-shaped.

Threads 2; *Tips* 4, one at each end of each thread.

Summit single.

Capsule a target of 4, 5, 6, or 7 cells.

Seeds numerous, egg-shaped or globular; placed upon and lapped up within the threads.

§ 2. *With a leafy fructification.*

OPHIOGLOS'SUM *vulga'tum*. Examining the spike in its advanced state, with a moderate magnifier, we find columns on each side, with cavities opening transversely, scattering a powder, and beset with innumerable *eminencies* tiled one upon another like scales. With a very fine knife slice off a portion, so as it may have a little of the column on each side. Examine this in a good compound Microscope, reflecting the light through it. Transverse lines will then appear, which, as well as the interstices between them, are more opake than the part on each side. It is easy to scrape off some of the *eminencies* with the back of a knife; put them into a little water, and use higher and higher magnifying powers, you will then discover simple and compound bodies, mostly oval, surrounded with a more pellucid line, and containing a granulated substance within. f. 8.

Pl. xiii. f. 7.

Others may decide whether the leaf in this plant answers the purpose of a fence or Empalement whilst it is in flower; but I consider the spike as bearing both Chives and Pointals; the *Tips* occupying the interstices of the Seed-buds, which are furnished with a transverse *Summit*.

It may be remarked that the Spike is at first yellowish, changing to brown, when the Capsules open and discharge their powder. This powder is the real seed, for after its discharge the plant gradually perishes, though new shoots are sent out the ensuing year.

OSMUN'DA *spi'cant*. This undoubtedly belongs to the Genus ACROSTICHUM.

Early in the spring the flowering leaves come up, almost rolled into a ball, and not the leaves only, but the leaflets also are rolled up. On the back side of each of these leaflets there are two white lines, extending from the base of the leaflet to the point, they are bordered with green and depressed in the middle. These white lines are fine membranes, and on carefully separating them at their union with the leaflet, we discover very minute pellucid bodies, supported upon footstalks. f. 11. c. c.

f. 9.

f. 10.

In the younger leaflets, by the assistance of high magnifiers, we may discover small bodies of a brownish cast, composed of two parts, the one very slender and pellucid, proceeding

proceeding from the rib, the other a coloured oval globule standing upon it. When the leaflet is fully unfolded, and the lines become more turgid, these corpuscles upon the rib disappear. Pl. xiii. f. 11. a.

POLYPO'DIUM *Thelyp'teris*. This does not well rank with the *Acrostichum*'s, to which Genus Linnæus referred it. The disposition of its fructification accords with the *Polypodium*'s.

Schmidel, *Icon. plant*, t. xi. 13. p. 45. has delineated and described this plant so accurately, that nothing remains for me to add, but that the vesicles of a shining yellow colour, viz. the Tips, are found upon the rib, and its ramifications, as well as upon the projecting edges of the membranes which cover the clusters of seed vessels.

POLYPO'DIUM *F. fem'ina*. When it first springs out of the earth and is yet in its curled state, we find by the assistance of a good Microscope, the back side of the leaflets covered with turgid capsules. On the other side, abundance of spherules of a milky colour, supported upon pedicles. f. 12.

Under the highest magnifier, these substances appear to consist of a very pellucid and tender pedicle, supporting a nearly opaque globule, filled with a granulated mass. f. 13.

When the leaflets and leaf are quite unfolded, all these substances disappear, whilst those on the under surface gradually enlarge, and ripen their seed.

ASPLENIUM *Trichomanes*. Whilst this springs out of the ground and is yet rolled inwards, the leaflets are very minute and fleshy. On their under surface, when highly magnified, crescent-shaped membranes may be perceived covering the minute grains which afterwards become capsules. At the same time, but chiefly towards the middle nerve of the leaflet, white shining globules are found. These put into a drop of water, and viewed with the highest magnifier, will be seen to consist of a thick and very transparent foot-stalk, supporting a globule filled with a granulated mass. f. 14.

f. 15.

It is unnecessary to be particular respecting the *ASPLENIUM Scolopendrium*, *ASPL. Ruta-muraria*, *POLYPO'DIUM F. Mas*, *POLYPOD. Phægopteris*, *POLYPOD. Dryopteris*,

opteris, all which I have examined in a recent state, and in all which I have found similar organs, at the time the leaves first put forth.

The membranaceous scaly productions upon the stalks, so plentiful in some species, have probably been the coverings of the now expanded parts, during the winter season.

There can be no doubt as to the uses of the other parts described above. None of these parts are found in the full grown plant. It is well known that whilst perennial plants ripen their seeds, the formation of new fructifications is going on. It is shewn, that the *EQUISETUM*'s perform their impregnations before they spring up. When the curled-up leaves of the Ferns begin to unfold, the Capsules are generally swollen; this is particularly obvious in the *OSMUNDA regalis*, whose fertile leaves shoot up early in the spring, and ripen their capsules in July.

There can be no doubt that these Capsules are real Seed-vessels, sometimes opening vertically, and sometimes horizontally into two hemispheres, which are surrounded by an elastic ring.

Explanation of the Plate belonging to the

FILICES. *as you can see*

- Pl. xiii. FIG. 1. A fruit bearing head of the *Equisetum sylvaticum* of its natural size, beginning to disperse its seeds.
2. A Capsule bearing Target, with its fruit-stalk magnified.*
 3. An unripe Seed, with its chives.
 4. A ripe Seed, with the dust of the tips scattered on the threads.
 5. A Seed-bud, with the Chives rolled round it in their natural position.
 6. A Seed of the *Equisetum palustre*.

* To prevent repetition, it is always understood that the parts are more or less magnified, unless when the contrary is particularly expressed. The Author used a good compound Microscope, with six magnifying powers.

- FIG. 7. A particle from the side of the Stalk of the *Ophioglossum vulgare*, whilst very young. (*a*) the convex part, bearing both the Chives and Pointals. (*b*) a portion of the skin, with a little of the pulp, from the outer side of the stalk. (*c*) the same from the inner side.
8. Tips of the same plant simple and compound.
 9. A back view of a spike of the *Osmunda spicant*, of its natural size.
 10. A particle of the leaf with a single leaflet. (*a*) the leaflet. (*b b*) Scales. (*cc*) membranaceous coverings of the Capsules.
 11. A particle of the same more highly magnified. (*a*) the rib, with the Chives on it. (*bb*) the membrane turned back each way. (*cc*) the rudiment of the fruit.
 12. An extremely small leaflet of the *Polypodium Filix-fem.* carefully expanded to shew the Chives.
 13. Two of the Chives taken out.
 14. Leaflets of the *Asplenium Trichomanes* from the yet unfolded extremity of the leaf. The Globules supported on foot-stalks are the Chives; the oblong spots the membrane covering the pointals.
 15. Two of the Chives taken out.
 16. A particle of the receptacle of the fertile florets. (*a*) the receptacle. (*b*) the skin of the leaflet, with its air ducts.

THE USES of the Filices are but little known: few of them are esculent. They have a disagreeable heavy smell. In large doses they destroy worms, and some of them are purgative. The ashes produced by a slow incineration of the green plants, contain a considerable portion of vegetable alkaly, and in this kingdom are very generally sold under the name of Athballs, to make lye for the scouring of linen.

“ In the hot house they become evergreens, and their beauty is greatly improved in colour and delicacy. The leaves if cut down when fully grown, and properly dried, make a thatch more durable than that of any kind of straw.

“ In most of the Genera of the second subdivision, the seedling plants require a succession of seasons before they produce

“ produce their fructifications. The *first* year a single leaf
 “ is produced, which seldom attains to more than an inch
 “ in height, is thin, semi-transparent, and most commonly
 “ entire. The *second* year two or three are produced, one
 “ larger than the other. The *third* year, four or five are
 “ produced, and the *fourth* year, more in number propor-
 “ tionable to the richness of the soil and the suitability
 “ of the situation. In most fertile soils, shaded situations,
 “ mossy dripping rocks, or near currents or rills of spring
 “ water, the leaves are thin, light and semi-transparent;
 “ larger and more numerous, and apt to become monstrous
 “ in shape or size. On dry rocks, and in barren soils
 “ exposed to air and sun, the leaves are few, short, firm and
 “ opaque, producing seeds in fewer years from the first
 “ springing up, and they generally retain their own proper
 “ figure.” BOLF.

MUSC I. Mosses.

This Order is subdivided according as the CAPSULES have a VEIL or no VEIL: as they are upon the same plant with the CHIVES, or upon different plants; and as the CHIVES are *solitary* or incorporated. The

SEEDS consist only of a *Corcle* without any *Coat* or *Seed-lobes*.

HEDWIG defines Mosses, as being vegetables in which the female parts of fructification are furnished with a Veil-like Petal, bearing a shaft. He divides them into two Orders;

1. *Capsule* either entire, lidded, and opening transversely:
frondosi.
2. *Capsule* with four Valves, opening lengthways:
hepatici.

These definitions exclude the LYCOPodium's from amongst the Mosses. Perhaps they should rank with the Osmunda; but their fructification has not yet been sufficiently examined.

§ 1. DE MUSCIS FRONDOSIS. These are the proper Mosses, or MUSCI of Linnæus.

If we except the *BRYUM pomiforme*, *subulatum* of Haller, —*trichodes*, and a few other non-descript species, the Mosses bear the Chives and Pointals in separate flowers, either on the same, or on distinct plants,

The time of flowering generally coincides with that of the fruit attaining maturity, as happens in other ever-green perennials. Thus in the *POLYTRICHUM urnigerum*, *MNIUM fontanum*, *hornum*, *punctatum*, *undulatum*; *BRYUM trichodes*, *cæspitium*, &c. the veils fall off early in the spring, and the seed is scattered abroad; whilst at the same time the less obvious unimpregnated Seed-buds, and the barren Chive-bearing Flowers, are performing their respective functions. This circumstance has caused these ripe Capsules to be mistaken for Tips, and the Seeds for the Dust.

CALYX seu PERICHAETIUM; *Empalement*, or *Fence*.

Both the BARREN and FERTILE flowers are furnished with a Fence, which gives the outward figure to the flower. It varies more in the barren flowers than in the fertile ones, and is more to be attended to. The radiated disks of the *POLYTRICHUMS* and the *MNIUMS*, are very remarkable, and the scales composing them differ in many respects from the other leaves of the plant. The heads which put forth at the extremities of the *BRYUMS* have been hitherto unnoticed, though they contain the parts of fructification, and are composed of leaflets or scales different both in shape and size from the stem-leaves. Thus in the *BRYUM rurale*, they are not terminated by hairs, and are shorter than the stem-leaves; in the *Br. pellucens*, *Br. scoparium*, *Br. heteromallum*, *Br. aciculare*, &c. they are broader than the other leaves, and more hollow at the base. Where the disk-like substances form a kind of bud, as in almost all the *HYPNUMS*, the *BRYUM extincitorium*, *Br. subulatum*, *Br. pulvinatum*, *Br. hypnoideum*, &c. they are much smaller than the leaves; they are also concave, egg or spoon-shaped, and destitute of the hairs which adorn the real leaves of the plant. These therefore are truly the EMPALEMENT, or FENCE, and as they include the florets with Chives only, we call them the FENCES of the barren FLORETS.

Upon

Upon an accurate inspection of the Mosses which bear Capsules towards their extremities, i. e. fertile flowers, we observe that the leaves adjoining to the fruit-stalk are much more beautiful than those on the stems. But sometimes the inner leaves become gradually smaller, and those nearest to the flowers so very minute, that without a Microscope it is not possible to dissect them away so as to expose the flower. Thus pl. xiv. f. 19. exhibits a plant of the *BRYUM pyriforme*, (a) contains the barren, (b) the fertile flower; f. 20. shews the fertile flower laid bare to the last conspicuous leaf, within which the flower lies hidden, but this being removed, other still smaller scales come into view. f. 21.

These therefore are to be considered as the fences of the fertile flowers, surrounding and embracing the Seed-bud. These fences, like those in many other well known plants, often grow larger as the capsule advances to maturity. A small plant of the *BRYUM extinctorium*, with the lower leaves taken away, to shew the bud-like Empalement of the barren floret, a.

f. 18. A plant of the *BRYUM pulvinatum*, with the leaves taken away, to shew the flowering buds, (a) the barren, (b) the fertile flower.

f. 19. A fertile and a barren plant of the *BRYUM pyriforme*.

f. 20. The fertile floret enclosed within its innermost leaves.

f. 21. The same, with all but one of its leaves removed.

Flowers with Chives.

The TIPS are almost universally cylindrical, and either straight or crooked, but in the *SPHAGNUM palustre*, and the *MNIUM androgynum*, they are egg-shaped and more or less tapering to a point. Their colour is a very dilute green, almost white. When viewed under the highest magnifiers, and strongly illuminated by reflected light, they are found to contain a granulated substance; but their tops are very pellucid, and this pellucid part expands into a rising vesicle at the time the dust is about to be discharged, as at c pl. xiv. f. 22. The top then opens and the dust is ejected, the space from which it issues becoming more transparent. This dust, when evacuated, seems to explode in the drop of water, in which these observations ought to be made. See f. 23.

Besides

Besides the Tips, included within the same fence, we find some very delicate succulent bodies, of various shapes. In the *POLYTRICHUM commune* they are club-shaped, but tapering to a point; in the *MNIUM fontanum*, and *palustre*, the *BRYUM rurale*, and *undulatum*, they are jointed and bluntish. In the *BRYUM hornum* the last joint is sharp. In *MNIUM serpyllifolium*, *punctatum*, *cuspidatum*, and *BRYUM pyriforme*, they have a jointed stem terminated by a globe, f. 24. In the *MNIUM hygrometricum* they have different shapes in the same floret; in some they are thread-shaped and more or less pointed; in the *SPHAGNUM palustre* they encircle the tip. Sometimes they are much longer than the tips, as in the *BRYUM pellucidum* and *pyriforme*, at other times shorter, as in *BUXBAUMIA sessilis*, and *BRYUM pulvinatum*.

We must add, respecting the shape of these barren florets, that in the *POLYTRICHUMS* and *MNIUMS* some are like disks, others like roses, and some like stars, when in a fully expanded state. In the stellated *Polytrichums*, the scales are placed in concentric circles. In *MNIUM hornum*, *palustre*, *fontanum*, &c. they are more like a rose or a disk. After the dust is dispersed, these roses or stars become more expanded, but, previous thereto, they are generally so open as to admit a view of the parts they contain. In some Mosses the flowers terminate the branches, as in *MNIUM pyriforme*, and *purpureum*; *BRYUM pellucidum*, *aciculare*, *scoparium*, *heteromallum*, *viridulum*, *simplex*, &c. in such, though a little open, they are not enough so to allow a sight of the tips until the flowering be past. Some florets are like buds, and sit in the bosom of the leaves, and others in the thickened termination of the branches as in the *SPHAGNUM*.

Two Chives of the *BRYUM extinctorium*, (c) one ready to burst, (d) one throwing out its dust, (eee) succulent vessels. Pl.xiv. f.22.

f. 23. A Tip of the *BRYUM truncatulum* viewed in the Solar Microscope whilst it throws out its dust.

f. 24. A Tip of the *BRYUM pyriforme*, with (aa) the succulent vessels,

Flowers with Pointals.

These are furnished with the usual female organs, viz, a Seed-bud, a Shaft, and a Summit, pl. xiv. fig. 25; but being accompanied by other substances much resembling them, they are difficult to be distinguished until the Seed-bud begins to swell, in consequence of its impregnation. These substances, of whose use I acknowledge myself ignorant, may for the present be called *succulent pointals*, see fig. 26. They are so like the real pointals that one might readily believe nature had formed the flowers with many pointals, in order that some might have the better chance of impregnation. But there are several circumstances which refute this supposition. Probably they are intended to supply the flowers with moisture in dry weather.*

Pl. xiv. f. 25. The rudiment of the fruit, or pointal of the *Buxbaumia sessilis*.

f. 26. A fertile flower of the *Bryum extensorium*, with the *succulent* pointals,

Of the Capsule and the CALYPTRA or Veil.

The pointal after impregnation daily growing larger and rising upwards, shews the part well known by the name of Calyptra or Veil. It may be considered as a kind of Petal, which is perforated at the top by the shaft of the Pointal. This shaft is sometimes permanent, falling off with the Veil, but where it is not so, the remains of it are always to be found.

f. 27. A capsule of the *Bryum pulvinatum*, with a part of the fruit-stalk. The VEIL being thrown off, the RING and the PERISTOMA or FRINGE become visible.

f. 28. The RING when separated and expanded.

f. 29. The VEIL.

f. 29.* The VEIL of the *Jungermannia pusilla*.

* These substances may aptly be compared to the florets with superfluous Pointals in the order Polygamia superflua of the class Syngenesia, or to the barren florets in the Rundle-bearing plants of the Pentandria class; and their uses may probably be the same, whatever those uses may be. WITH.

The Capsule or Seed-vessel.

From what has been alledged, it is evident that what Linnæus called the Antheræ, or Tips, are really the Seed-vessels, and by sowing the Seed which they contain, I have repeatedly procured a crop of young plants, in all respects similar to their parents.

The Capsules of Mosses are always supported upon a fruit-stalk, though sometimes it is very short, and excepting only in the *SPHAGNUM palustre*, this fruit-stalk is sheathed and conical at its base. The CAPSULES vary in shape, size, and consistence. In some species there is an elastic ring between the Capsule and the Veil, pl. xiv. f. 28, which when the Seed is ripe, throws off the Veil with more or less force. The Veil, f. 29, being thrown off, we find certain fringe-like processes or projections, f. 27. (a) varying greatly in size, shape, structure, number and disposition. They surround the opening of the capsule in a single or double, rarely in a triple series. These substances I shall beg leave to call the PERISTOMA.* The use of this Peristoma or Fringe, seems to be to defend the Seeds in wet weather. In dry weather it expands and leaves the mouth of the Capsule open, but upon the least moisture, even that of ones breath, it closes again.

Seeds.

The Seeds of Mosses are spherical, generally smooth, sometimes dotted as in *BRYUM extincitorium*, sometimes prickly, as in *BRYUM pyriforme*, or *heteromallum*. They are brown, yellow, or greenish.

USES.—Mosses thrive best in barren places. Most of them love cold and moisture. Trifling and insignificant as many people think them, their uses are by no means inconsiderable. They protect the more tender plants when they first begin to expand in the spring, as the experience of the gardener can testify, which teaches him to cover with
Moss

* On the varying structure of the Peristoma, and the figure and disposition of the barren florets, the author proposes to establish the Genera of Mosses,

Moss the soil and pots that contain his tenderest plants; for it equally defends the roots again the scorching sun beams and the severity of the frost. In the spring, when the sun has considerable power in the day time, and the frosts at night are severe; the roots of young trees and shrubs are liable to be thrown out of the ground, particularly in light spongy soils. But if they are covered with Moss, this accident never can happen. Those who are fond of raising trees from seeds, will find their interest in attending to this remark.

Mosses retain moisture a long time without being disposed to putrefy. The angler takes advantage of this circumstance to preserve his worms, and the gardener to keep moist the roots of such plants as are to be transported to any considerable distance.

It is a vulgar error to suppose that Mosses impoverish land. It is true they grow upon poor land that can support nothing else; but their roots penetrate very little, in general hardly a quarter of an inch into the earth. Take away the Moss, and instead of more grass you will have less; but manure and drain the land; the grass will increase and the Moss disappear.

The *SPHAGNUM palustre*, the *MNIUM triquetrum*, the *BRYUM paludosum* and *cæstivum*, the *HYPNUM aduncum*, *scorpioides*, *riparium*, and *cuspidatum* grow upon the sides and shallower parts of pools and marshes; and in process of time; occupying the space heretofore filled with water, are in their half decayed state dug up and used as fuel under the name of Peat. These marshes, drained partly by human industry, and partly by the long continued operations of vegetables, are at length converted into fertile meadows.

Very few Mosses are eaten by cattle. The Bishop Moth and the Brussels Lace Moth feed upon some of them. Their medicinal virtues are but little known, and less attended to. I think it probable that on account of their astringent properties, some of them might be worth trying as a substitute for Oak bark in tanning leather.

AL'GÆ. Thongs.

The plants comprised under this division scarcely admit of a distinction of root, stem, and leaf; much less are we enabled to describe the parts of the flowers. The Genera therefore are distinguished by the situation of what we suppose to be the flowers or seeds, or by the resemblance of the whole plant to some other substance we are well acquainted with.

Linnæus calls the plants of this Order SEA-WEEDS, but with no great propriety; for very few of the Genera have any thing to do with the sea. We rather choose to call them THONGS, because the substance of most of them is more or less like leather, and many of them are in the form of Thongs. In plate 1st. E. and F. are specimens of one of the Genera, and G. of another.

These plants, though generally looked upon as unworthy of notice, are of great consequence in the œconomy of nature, and afford the first foundation for vegetation. Thus one species of the BYSSUS, and several species of the LICHEN fix upon the barest rocks, and are nourished by what slender supply the air and the rains afford them. When these die, they are converted into a very fine earth in which the tiled LICHENS find nourishment, and when these putrefy and fall to dust, various Mosses, as the BRYUM HYPNUM, &c. occupy their place; and in length of time when these perish in their turn, there is a sufficiency of soil in which trees and other plants take root. This process of nature is sufficiently apparent upon the smooth and barren rocks upon the sea shore.

Some of the FUSCI are esculent.

Many of the LICHENS are a grateful food to Goats; and the Rein-deer, which constitutes the whole œconomy of the Laplanders, and supports many thousand inhabitants, lives upon one of the species. Many of the species afford colours for dying. One of them brought from the Canary Islands, viz. the Orchel, or Argol, makes a very considerable article of traffic. It is not improbable that some of the species growing in our own island may afford very beautiful and useful colours; but this matter has not been sufficiently examined. Mr. Hellot gives us the following process for discovering whether any of these plants will yield a red or purple colour. "Put about a quarter of an
" ounce

"ounce of the plant in question into a small glass;
 "moisten it well with equal parts of strong Lime-water
 "and spirit of Sal Ammoniac; or the spirit of Sal Ammo-
 "niac made with quick-lime will do without Lime-water.
 "Tye a wet bladder close over the top of the vessel, and
 "let it stand three or four days. If any colour is likely
 "to be obtained, the small quantity of liquor you will
 "find in the glass will be of a deep crimson red; and the
 "plant will retain the same colour when the liquor is all
 "dried up. If neither the liquor nor the plant have
 "taken any colour, it is needless to make any further
 "trials with it."

Mr. HEDWIG calls several of the *Algæ Musci hepatici*, and shapeless and unorganized as some of them seem, his genius, aided by indefatigable industry, has explored the heretofore latent secrets of their fructification. Of these discoveries I subjoin an abstract sufficient perhaps to excite others in this country; who may have leisure, to a still further prosecution of a subject, in which much still remains to be discovered:

§ 2. De MUSCIS HEPATICIS.

All the fertile florets have a double Empalement, or a CUP and a BLOSSOM. In shape and structure they greatly resemble the *Musci frondosi*, but I have never found the succulent threads; the Pointal-like substances are however found, accompanying both the Seed-bud and the ripened Capsule; but not in all the species.

The Capsule, like those of the preceding Mosses, is inclosed in a Veil, to which the Shaft adheres; but this Veil is not as in them, loosened at its attachment and raised along with the growing Capsule, it tears open in two, three, or four places, and has therefore been sometimes considered as a petal.

All these Mosses agree in ripening their fruit, which is raised upon an elongated fruit-stalk, and opens into four Valves, filled with the seeds, attached to elastic cords. These Seeds proved upon trial to reproduce their respective plants.

JUNGGERMAN'NIA nemo'rea. It bears its barren flowers, which are of a reddish brown colour, at the summit or extremity of the Stem, in one plant, and its fertile florets at the extremity of another plant.

f. 30. A barren plant of its natural size.

Pl. xiv.

f. 31. The flowering summit of the barren plant.

f. 33. The seed-bud of the fertile plant, with its pointal, and 3 pointal-like bodies at its base, taken from the fencing leaves at the top of the plant.

JUNG ERM A N' N I A *asplenioi'des*. The extremity of the Chive-bearing plant forms a beautiful tiled, two-rowed fence of leaflets, very concave at the base, within each of which are found 2 or 3 Chives, of a milky colour.

The fertile flowers are on a distinct plant, included also in a leafy fence, at the top of the plant.

f. 35. A barren plant of its natural size.

f. 36. The tiled leaves at the extremity of the plant, which include the Tips.

f. 37. A Tip taken out of the leafy fence.

f. 38. A Tip open at the end, after shedding its dust.

f. 39. A fertile plant of its natural size.

f. 40. The Seed-bud with its shaft and accompanying pointal-like vessels, taken out of its fence-leaf at the extremity of the plant.

f. 41. The Seeds, with the elastic threads to which they are attached.

JUNG ERM A N' N I A *pufil'la*. The Chives very much resemble those of the *Sphagnum palustre*; they are placed upon the Stem, in the bosom of the leaves: their colour greenish, changing to yellow. The fertile flower is found towards the top of the same plant, included in a leafy fence; but by the growth of the plant during the ripening of the Capsules, they are at length found about its middle.

f. 42. The plant of its natural size.

f. 43. The same magnified, to shew the 4 Chives at its base, and the fertile flower at its summit.

Pl. xv.

f. 44. A Chive more highly magnified.

Pl. xiv.

f. 45. The Seed-bud and Shaft taken out of its leafy fence.

f. 29.* The Veil separated from the ripened Capsule.

f. 46. A Seed, with its elastic thread.

JUNG ERM A N' N I A *palma'ta*. The flowers with Chives are found at the extremities of the branches; after flowering, they fall off, and give the branch the

appearance of having been lopped. The fertile flower is generally at the base of the branches, but sometimes also at their sides, on a distinct plant.

- Pl. xiv. f. 47. A barren plant of the natural size.
 Pl. xv. f. 48. The same magnified, to shew the barren florets (*aa*). (*c*) one of them open at the end.
 Pl. xiv. f. 49. Two Chives separated.
 f. 50. A fertile plant of the same species magnified, with the Capsule open, its valves turned back, and the elastic threads at its extremity.
 f. 51. The elastic thread, with the seeds.

JUNGERMANNIA furcata. The barren flowers of this are found concealed in the substance of its trunk ; its fertile ones are on the same plant, and possess nearly a similar situation.

- Pl. xv. f. 52. The plant of the natural size.
 f. 53. A small bit of it highly magnified, to shew the two barren florets (*aa*), and the fertile floret (*b*).
 f. 54. A barren floret further magnified.
 f. 55. A Chive separated.
 f. 56. The Empalement of the fertile floret cut through lengthways.
 f. 57. The ripe Capsule open, and the Seeds adhering to the elastic threads.

JUNGERMANNIA epiphylla. The barren florets form protuberances on the upper surface of the leaves. The fertile florets are formed at the extremity of the leaf, but as they ripen, the growth of the leaf continuing, they ultimately appear on its disk. Want of attention to this circumstance has given rise to errors respecting the species of these plants.

f. 58. The plant somewhat magnified to shew more distinctly the dots of barren florets, and the fertile floret concealed under its scaly empalement at the end of the leaf, at (*d*).

f. 59. The fertile floret taken out of its empalement.

MARCHANTIA polymorpha. Early in the spring we find upon this plant certain glass-shaped cups, containing lentile-shaped substances ; these are perfect young plants, either formed at once from the parent plant, or else growing from seeds deposited thereon. Soon after

we may observe some entire targets formed; and as these rise upon their foot-stalks, on other plants, either on the same, or on a different tuft, stellated targets appear, which grow taller than the entire ones. The entire targets, when cut through, vertically, are found to contain the Chives; surrounded by their succulent vessels. The stellated targets contain the seed-buds, two or three of which are found under each of the rays, invested with its membrane, out of which the pointal projects previous to the impregnation of the seed-bud. These seed-buds do not ripen all at the same time. In a favourable situation this plant flowers again in July. From what has been said; it is evident that it belongs to the class DIOECIA.

f. 60. A target of barren flowers cut perpendicularly down through the foot-stalk. Pl. xv.

f. 61. A follicle of Chives taken out and more magnified to shew its surrounding ring.

f. 62. A Seed-bud, with its shaft projecting.

f. 63. A Capsule, with its 3 succulent fibres.

f. 64. An elastic cord taken out of the ripe Capsule, with one of the seeds.

MARCHANT'IA *co'nica*. The barren flowers are sitting; in every other respect they so exactly resemble those of the preceding species; as to render any further description of them unnecessary; but the fertile flowers have a singular structure in respect to the pointals. At the time the Chives attain perfection, the conical assemblage of fertile flowers displays within their proper membranes as many pointed shafts; as there are seed-buds. On account of their tender structure it is very difficult to examine them, but when nicely dissected, the shaft appears to proceed from the base of the seed-bud, and to bend upwards towards its point. The capsule is furnished with a Veil, which does not fall off, but bursts by the expansion of the Capsule, which at length, when quite ripe, opens with 4 Valves, which roll back.

f. 65. A disk of barren florets cut down perpendicularly. Pl. xv.

f. 66. Six fertile flowers taken from the common fruit-stalk, with the six shafts bent back.

f. 67. A ripe Capsule opened by the rolling back of the Valves (*h*). shewing the seeds fixed to the elastic cords (*i*).

ANTHO'CEROS *laevis*. The Chives, covered by the outer skin of the leaf, form spots of a yellowish green colour, and somewhat raised. As they approach to maturity, the skin bursts and contracts into an oval shape, forming an Emplement. Each of these spots contains three or more follicles of Chives, of a reddish yellow colour. Each Chive is furnished with its thread, and surrounded by a jointed succulent vessel. At the same time the fertile flower assumes an elevated conical figure, supporting a Veil on its extremity, furnished with a very short shaft. When ripe, it changes to a dark brown colour, divides into two valves, scattering its seeds with an explosive power.

The ANTHOCEROS *punctatum* resembles this species in its parts of fructification.

Pl. xvi. f. 63. A part of the leaf magnified, to shew one fertile, and four barren florets.

Pl. xv. f. 69. Two of the Chives taken out of a barren floret.

f. 70. A perpendicular section, to shew the Capsule just emerging from its sheath, and supporting its veil.

Pl. xvi. f. 71. The ripe Capsule opened, with the columnar receptacle, and a few remaining Seeds.

f. 72. A ripe seed, prickly, and its elastic membrane.

B L A' S I A *pumila*. It flowers in the beginning of May; at which time the leaf is narrow, and the Chives appear very near to its rib; but as the membranaceous parts expand, with the growth of the leaf, they at length appear at a distance from the rib. The Tips are yellowish, rather protuberating, inclosed in a follicle, from which they are with difficulty extracted. Towards the end of the plant we discover the pointal, with its summit sitting on the rudiment of the fruit, but it is very fugacious. As the fruit ripens, the place before occupied by the shaft appears as a tube, not unlike the conical horn of the Anthoceros. The Capsule now becomes more heart-shaped, and its narrow point looks towards the root of the plant. At length the globular seeds in its cavity become distinct; and when ripe they are pushed out of the mouth of the tube either by their own expansion, or by the contraction of the capsule, and sticking there, have an appearance like the barren floret of the *Mnium androgynum*.

f. 73. The plant magnified, to shew the dots of the barren florets, and the two fertile ones.

f. 74: A

f. 74. A Chive taken out of a barren floret.

Pl. xvi.

f. 75. An unripe Capsule divided perpendicularly to shew the seeds.

R I C ' C I A *glau'ca*. The leaf has no rib, but seems composed of vessels equally dispersed. When magnified, it appears covered with tubercles, and amongst these we observe distinct shining globules. One of these globules when nicely dissected, and exposed to the highest magnifying power, in a drop of water, appears of a granulated texture. I consider those as the Tips, for nothing else appears like them. The fertile flower lies imbedded in the substance of the plant, where it ripens its fruit. They who reflect how small a part of a body is dedicated to the purposes of generation in comparison of its whole bulk, will conceive the difficulty of observing the very minute pointal of this plant, buried as it is in the substance of the plant, its summit only, opening on its surface. As the Capsule swells, it becomes more apparent, and by a perpendicular section through the substance of the leaf, we discover the shaft, of a beautiful brown colour, ascending from the Capsule to its surface. The seeds are at first white, afterwards greenish, but nearly transparent, and surrounded with a very transparent white border. The Capsules, when ripe, open on the surface of the plant, forming a black spot, visible to the naked eye. They are generally observable towards the base of the leaf.

f. 76. The plant of its natural size.

f. 77. Part of the same magnified, to shew the more superficial spots containing the Chives, and the deeper seated fertile flowers (*aa*).

f. 78. A follicle of Tips separated, and highly magnified.

f. 79. A perpendicular section through the substance of the plant, to shew the ripening capsules, and their shafts rising up to the surface of the leaf.

f. 80. A Capsule taken out, together with its shaft.

L I ' C H E N *cilia'ris*. The fringes from the extremities destined to take root, and the downy matter on the surface, have nothing to do with the real parts of fructification. These are to be found in the concave saucers, or convex targets or warts, either on the same or on a different plant. They both arise from a kind of

knot on the under surface of the plant. The warts change to a brown and then to a black colour at the top; but before they become brown, a perpendicular section through one of them, discovers a single or double cell buried in the tender pulp of the plant, and filled with a granulated substance. Whenever the top of this wart or tubercle turns black, the granulated mass has then escaped through it, and only a kind of jelly remains in the cells; which however soon vanishes, whilst the whole tubercle becomes black and hard. This process is performed in a short time.

The rising particle which is destined to form a concave saucer, becomes hollow and green at the top, through which if we make a perpendicular section, we find fibres radiating from its center, and forming a semi-circle, bounded by a more opaque line. As this continues growing, the saucer becomes larger and more and more open. Its cavity is at first reddish, gradually becoming darker. At length it becomes a perfect saucer, either sitting, or supported on a short foot; its border scolloped or entire, black within when moist, and greyish when dry.

If now we cut the saucer through, and examine a vertical section of it in a little water, we shall find immediately under the black crust at the top, the seeds disposed in straight perpendicular columns. When very highly magnified these seeds appear egg-shaped, but marked with a distinct groove transversely. No unprejudiced person can therefore doubt that the warts with the black tops are the barren flowers, and the saucers the fertile ones.

The saucers in all the species of Lichens resemble the above in their mode of flowering, and in the same disposition of their fruit. The chive-bearing flowers are also similar, whether contained like those of the *L. ciliaris* in the substance of the plant, or as in others, on its surface. In some species, as in the *L. physodes*, they are found on the extremities of the branches; in others on the edges, as in the *L. furinaceus*; *fraxineus*; in others again on the under surface, as in the *L. pulmonarius*, *aphthosus*, &c. where they sometimes form circles somewhat resembling saucers, as in the *L. stellaris*.

Pl. xvi, f. 81. Part of the plant magnified, to shew (*ooo*) the barren, and (*m*) the fertile flower. (*nn*) the fringes which strike root; some of them expanding at the the end.

f. 82. The section of a chive-bearing flower cut through perpendicularly.

f. 83.

- f. 83. The section of an unopened fertile flower,
 f. 84. Section of a flower, with the ripe seeds,
 f. 85. Ripe seeds taken out,

Pl. xvi.

LICHEN *physodes.*

- f. 86. The barren plant of its natural size.
 f. 87. Its Chive-bearing extremity highly magnified,

FUN'GI. Fungusses.

We know very little about the Flowers or Seeds of the Fungusses; the generic characters are therefore taken from their external form. In plate 1. at H. a species of AGARIC is represented to shew (*a*) the RING; (*b*) the STEM; (*c*) the PILEUS.

All the Genera under this division, particularly the LYCOPERDON, and MUCOR, abound with a black powder, which examined with a good Microscope is found to consist of globules which are supposed to be the seeds. But the Baron MUNCKHAUSEN says these globules are semi-transparent, containing a little black particle. He says too that if this powder is mixed with water and kept in a warm place, the globules presently swell and are changed into egg-shaped self-moving animalcules. In about two days these animalcules unite and form a mass of a pretty firm texture, or Fungus. When these Fungusses begin to grow, they appear like white veins, which are commonly supposed to be the roots; but in fact they are only tubes in which the animalcules move, and in a short time are transformed into a Fungus, which, with plenty of moisture, and a proper degree of warmth, grows to a very large size. The black powder found betwixt the gills of Mushrooms produces the same phænomena.

A fact so singular could not fail to excite the attention of philosophers, and accordingly the accurate and ingenious Mr. Ellis, whose discoveries in many abstruse parts of the animal and vegetable kingdoms do him the highest honour, undertook the subject, and soon demonstrated that the motion of these globules was occasioned by a number of very minute animalcula feeding upon them; but the animalculæ being much smaller than the globules are difficult to detect, on which account the Baron seems

to

to have overlooked them.—See Philosophical Transf. vol. lix. p. 138.—See also Gent. Mag. for 1773, p. 316.

Fungusses have been sought for as food, upon account of their fine flavour; the species used in this island for that purpose are very few, in France they are more generally adopted, and still more so in Italy; but we are told that in Russia they are eaten almost indiscriminately, salted and kept for winter use. It is certain that many people in this country have been killed by eating some of the species, but I believe few of them are really poisonous, in the strict and proper sense of the word. Some of them have been found of considerable use in stopping external hæmorrhages, and the acrimonious qualities of others will probably some day be turned to good account.

The following are the principal discoveries of HEDWIG on the subject of Fungi.

AGAR'ICUS (*Amanita*) *arborea mollis, coloris exacte crocei*, Dill. Giff. p. 182.

. On dividing a plant of this species longitudinally through the middle, before the Curtain had began to separate from the edge of the Pileus, the whole inner surface appeared white; but whilst my attention had been arrested by some still whiter lines observable in the flesh of the Pileus and of the stem, the upper and inner surface of the Curtain changed to a violet, and in a short time to a brownish colour. On nicely raising a small portion of this surface, and viewing it under high magnifiers, I discovered pellucid succulent vessels, and innumerable oval globules connected therewith, of a dilute brown colour. The part from which this portion had been taken away, did not change colour again.

I next examined a portion taken from one of the Gills, whilst it was yet white. It was divisible, though not readily, into two lamina. The lower edge was thickly set with tender cylindrical substances, some of which had a globule at their extremities, but others not. The Gill itself appeared of a reticulated structure, with larger and more distinct spots, a little raised.

In another older plant of the same species, when the Curtain was torn, the Pileus pretty fully expanded, and the Gills turned yellow, the upper part of the stem began to

to be tinged by a brown powder shed from the Gills. It was evident on examination, that this brown powder was the Seeds, and that it proceeded from the larger spots before observed in the Gills, the two laminæ of which now readily separated.

f. 88. A view of the plant cut down lengthways.

Pl. xvi,

f. 89. Strings of Chives, very much magnified.

f. 90. A portion of the Gill, to shew the unripe seeds,

f. 91. The ripe seeds.

There is therefore reason to believe that the Chives are the globules attached to the threads found within the Curtain. After these vanish, the plant continues to grow until it scatters its Seeds, and then it dies.

We learn from these observations, that the full expansion of the Pileus indicates the maturity of the Seeds, and that the following is performed previous to the rupture of the Curtain.

On examining the Curtains and the Rings of different Agarics and Boleti, I have always found the above-mentioned globules on their upper or inner surface. In some of the yellow Agarics they are so numerous on the upper surface, as to stain the fingers when touched, but the under side is smooth and entirely destitute of them. Some few Agarics, seem to have only a row of these threads beset with globules at the edge of the Pileus, whilst it is in contact with the stem, and upon its expansion they shrivel and drop off.

It is true that in many Agarics we neither find Curtain, nor Ring, nor these threads at the edge of the Pileus, but when this is the case, the threads are placed upon the Stem; and may readily be found by examining the plant in its very young state, before the edge of the Pileus separates from the stem. This structure takes place in many of the Agarics, the *Hydnum imbricatum*, and the Boleti, which are rarely furnished with a Curtain. After the Pileus in these is expanded, and the stem grown longer, its upper part where the Chives were seated, becomes reticulated. The Seeds of the Boleti are found within the membrane that lines the tubes.

The stem-less Agarics and Boleti present similar appearances about the edge, and at the base. I have also found something of the same kind in the *Peziza cyathoides*, whose seeds

seeds appear to be inclosed in a kind of pod; and likewise in one or more of the Lycoperdons; but these have not yet been sufficiently examined.

Whether the succulent vessels in the margin, fig. 90, or the surface of the gills, or the mouths of the tubes be, or be not, shafts and funnits; or whether they are designed for any other purpose, I shall not determine.

It is however sufficiently evident, that the Agarics, and the Boleti, are vegetables, and that they belong to the class MONOECIA.

Class

Class XXIV.

CRYPTOGAMIA.

FLOWERS INCONSPICUOUS.

FI'LICES. Ferns.

* *Fruifications in a spike.*

1284. EQUISE'TUM. Spike scattered. Flowers target-shaped; with valves at the base.
 1288. OPHIOGLOS'SUM. Spike jointed. Fruit cut round.
 1289. OSMUN'DA. Spike bunch-like. Fruit 2 valves.

* * *Fruifications on the under surface of the Leaves.*

1290. ACRO'STICHUM. Covering the whole surface of the leaf.
 1296. POLYPO'DIUM. In distinct spots upon the surface of the leaf.
 1295. ASPLE'NIUM. In several nearly parallel lines, upon the surface of the leaf.
 1291. PTE'RIS. In lines at the edge of the leaf.
 1297. ADIAN'TUM. In spots, covered by the points of the leaves bent back.
 1293. TRICHO'MANES. *Fruifications* solitary; inserted in the very edge of the leaf,

* * * *Fruifications at the Roots.*

1300. PILULA'RIA. Capsule with 4 cells.
 1301. ISO'ETES. Capsule with 2 cells.

MUS'CI.

MUS'CI. Mosses.

* Without Veils.

1302. LYCOPO'DIUM..... Capsule with 2 valves; fitting,
 1304. SPHAG'NUM. Capsule with a smooth mouth.
 1305. PHAS'CUM. Capsule with a fringed mouth.

** With Veils. Chives and Pointals distinct.

1308. SPLAGH'NUM. Capsule with a large excrescence,
Phascum ampullaceum.

1309. POLY'TRICHUM. Capsule with a very small excrescence; bordered.
Mnium polytrichoides. Bryum striatum.

1310. MNI'UM..... Capsule without any excrescence,

*** With Veils. Chives and Pointals on the same plant.

1311. BRY'UM. Capsule on a fruit-stalk, rising out of a tubercle at the end of the branch.
Phascum acaulon. Phascum subulatum.

1312. HYP'NUM. Capsule on a fruit-stalk, rising out of a scaly bulb at the side of the branch.

1306. FONTINA'LIS. Capsule fitting; inclosed in a tiled scaly bulb.

1307. BUXBAU'MIA. Capsule on a fruit-stalk, membranaceous on one side.

AL'GÆ. Thongs.

* Growing on the ground.

1313. JUNGEMAN'NIA. Flowers with a simple empal, of 4 valves. †

† See Retz. scand. p. 201.

1315. MARCHANT'IA. Flowers on the under side of a common target-shaped empale-ment.
1314. TARGIO'NIA. Flowers with an empal. of 2 valves.
1318. ANTHO'CEROS. Flowers with a tubular Empale-ment. Capsule awl-shaped, with 2 valves.
1316. BLA'SIA. Fruit cylindrical, tubular.
1315. RIC'CIA. Fruit little Grains in the substance of the leaf.
1319. LI'CHEN. Fruit in a smooth even shining receptacle.
1324. BYS'SUS. Substance woolly.

* * Growing in water.

1320. TREMEL'LA. Substance gelatinous.
1322. UL'VA. Substance membranaceous.
1321. FU'CUS. Substance like leather.
1323. CONFER'VA. Substance like hair.

F U N G I. Fungusses.

§ 1. Seeds on the under surface:

- MERU'LIUS. Pileus with Gills underneath, of the same substance with the rest of the plant.
1325. AGA'RIGUS. Pileus with Gills underneath, of a different substance from the rest of the plant.
- FISTULI'NA. Pileus with separate tubes underneath. Seeds in the tubes.
1326. BOLE'TUS. Pileus with united tubes underneath. Seeds in the tubes.
1327. HYD'NUM. Pileus with solid cylinders underneath. Seeds on the cylinders.
1330. HELVEL'LA. Pileus on a stem, smooth underneath. Seeds on the under surface.

— AURI-

CRYPTOGAMIA.

- AURICULA'RIA..... Flat, membranaceous, fixed when young by the whole under surface. Seeds on the upper surface which becomes reversed as it attains maturity.

§ 2. *Seeds on the upper surface.*

1331. PEZI'ZA. Cup-shaped or concave. Seeds discharged by jerks from the upper surface only.
- NI'DULARIA..... Leathery; fitting; bell-shaped. Capsules large, flat, fixed to pedicles at the bottom of the bell.
1328. PHAL'LUS. Stem supporting a cellular head. Seeds in the cells.

§ 3. *Seeds on every part of the surface.*

1332. CLAVA'RIA. Oblong, upright, club-shaped. Seeds emitted from every part of its surface.

§ 4. *Seeds in the substance of the plant.*

- TU'BER. Fleishy, solid, not becoming powdery; not opening at the top.
1333. LYCOPER'DON..... Firm, fleshy, becoming powdery and fibrous within; opening at the top.
- RETICULA'RIA. Pulpy, changing to friable; opening indiscriminately. Seeds lodged in interlacing fibres or membranaceous cases.
- SPHE'RIA..... Fruit spherical, filled with black powder, mostly concealed by an outer coat; opening at the top.

— TRIC'HIA.

- TRIC'HIA. Capsule globular, egg-shaped or cylindrical, composed of interwoven fibres. Stem fixed to a membranaceous base.
1334. MU'COR. Stem very slender. Seeds naked, or in Capsules at the ends of the stem.

FI'LICES.

FILICES. Ferns.

1284. EQUISETUM. Horsetail.

FLOWERS disposed in an egg-shaped oblong spike.

Individuals roundish; opening at the base with many valves connected by the top, which is flat and target-shaped.—See plate I. fig. A.

Ess. CHAR. *Spike with target-shaped fructifications, which consist of many valves, and open at the base.* (See p. 11.)

wood EQUISETUM *sylvaticum*. Stem bearing a spike, and compound leaves.—

Hedw. Theoria. 1.—*Bolt. fl.* 33.—*Ger.* 957, misprinted 953. 5. *cop. in C. B. th.* 245.—*Park.* 1201. 5.—*Bolt. fl.* 32, the fructification.

The entire plant very much resembling in figure a fir-tree, its leaves being all in whorls. LINN.—*Stem* when the fruit is ripe from 7 to 15 inches high, smooth, slightly scored, pale yellowish brown. *Sheaths* of the same colour, but deeper. *Leaves* 8, 10, or 15 in a whorl, bursting out from the upper knot of the stem. *Fructifications* about 15 in a whorl towards the bottom of the spike. *Seeds* with 2, 3, or 4, small threads, which on being breathed upon, coil up on the seeds, but in a moment becoming dry they expand again. After several expansions and contractions they detach themselves, still contracting when moistened, gradually bending from a straight line into a circle. If a drop of water be pushed towards them, they contract before it touches them. These contractions are often so sudden as to throw the object out of the field of view. WITH.

Moist woods and shady places near rivulets, and in boggy ground.

P. April, May.

Horses are fond of it, and in some parts of Sweden it is collected to serve them as winter food.

β *Leaves* pointing all one way. *Ray. syn.* 131. 5.—This happens when the stem has been trodden down. BOLT. WITH.

In the wood near Chiffelhurst. *R. syn. ib.*

γ *Leaves* very long and very slender. *R. syn.* 131. 6. WITH.

In shady and moist situations. It is a variety of *E. palustre*. BOLT.—*Leaves* of a pale yellow green colour. *Ibid.*

I believe this change in the habit occasionally takes place in both species, and indeed more or less so in almost every plant in similar situations. WITH.

EQUISETUM arven'se. Fertile stalk leafless. corn
Barren stem leafy.—

Curt. iv. 48, fertile and barren stems.—Bolt. fil. 34.—Dod. 73.
2, repr. in Lob. ic. i. 795. 2, and cop. in C. B. tb. 247, the
right hand part of the figure. Fertile plant only represented.—
Blackw. 217. 3, and 4, fertile plant.—Fuchf. 323, cop. in J.
B. iii. 730. 1, Trag. 692. 2, and Lon. i. 176. 2.—Marth.
1027, cop. in Cam. epit. 771, Dod. 73. 4, which repr. in
Lob. obs. 461. 3; ic. i. 794. 2, Ger. em. 1114. 5, and
cop. in Park. 1202. 11.—Fuchf. 322; cop. in J. B. iii. 729. 2.
—Ger. 956. 3.

Fertile stems appearing before the other; soon decaying. Barren
stems continuing a long time. Stachlin observed that the dust, when
shaken out of the spike, jumps about as if it was alive. LINN.—
Leaves often emitting a lateral branch. HALL. ST.—Fertile stalk
with wide loose sheaths. Barren stems rough, slender. Leaves 12 to
15 in a whorl, somewhat branched. LEPRS.—Stalk from a hand's
breadth to a foot high, cylindrical, smooth, jointed, the upper knots
farther distant, the lower approaching nearer to each other; each
joint terminating in a sheath. Sheaths furrowed, wider than the
stalk, with many clefts; segments spear-shaped, tapering to a point.
Spike yellowish white, nearly an inch long, the base encircled with a
membranaceous yellowish border. Fructifications in whorls, yellowish.
Spike-stalk cylindrical, scored, yellowish. Dust greenish. POLLICH.
—Stem when fresh roughish, in moist shady situations smooth and
somewhat shining. Sheaths in such situations scored with green.
Sheaths with 4 teeth corresponding to the angles of the leaves, of the
same colour with the leaves. Mr. WOODWARD. ST.—Leaves, angles
acute, sides channelled, sometimes throwing out two branches from
the same knot. Root cylindrical, with threads from the joints,
stiffish, woolly, dark brown. Stalk fleshy; with several cylindrical
tubes within, a central one, with 9 others three or four times smaller,
disposed in a circle round it; and another 9 exceedingly minute
between them and the central one; yellowish brown, semi-trans-
parent, obscurely marked with 9 scores. Sheaths somewhat bellying,
of a silvery brown, with 9 furrows; segments 9, pointed, somewhat
approaching. Stalks, sheaths furrowed as the stem, cloven one
third of the way down; teeth blackish brown at the ends, with
very shallow white membranaceous edges. Leaves, the joints of the
upper branches frequently 3-square, and the joints terminating in 3
teeth; teeth open. ST.—The fertile stems not to be distinguished
from those of the *E. sylvaticum* before the leaves appear, but by
observing that the sheaths in the *E. sylvaticum* are divided into 12
segments, but in this species only into 3 or 4. BOLT. WITH.

Moist corn fields.

P. March, April.

♂ Leaves very long. R. Syn. 131. 8. The open teeth at the joints of the leaves prove it to belong to this species, though Haller asserts it to be a variety of *E. palustre*. ST. WITH.—In very wet and close woods, or amongst tall grass. BOLT.—Not properly a variety, differing from α merely in luxuriance. ST. WITH.

Sheep and cows will not eat it unless compelled by hunger, and then it is hurtful to them. Loefel says if ewes in lamb eat it that abortion is the consequence.

γ HUDS.—Probably only the fertile stalks of α . DILL. in R. Syn. 130. n. 3. Mr. Woodw. ST.—which come up before the barren ones, destitute of leaves, variegated with brown colours; soon perishing. BOLT. WITH.

EQUISE'TUM *palustre*. Stem angular. Leaves marsh undivided.—

Bolt. fil. 35; *Barren plant* 16. 37.—*Lob. ic.* i. 795. 1. repr. in *Ger. em.* 1114. 4, and cop. in *Park.* 1200. 3.—*Trag.* 694. cop. in *Lon.* i. 176. 3, and *C. B.* 1b. 247, left hand stem.—*Garf.* 258. *B. fructification.*—*Hedwig. Th.* 2. 8. 9. 10.

Stem between angular and furrowed, smooth. *Spikes* smaller than those of the other species. *Leaves* 6 to 10, furrowed, smooth, with black scales at the base. LEERS, ST.—*Stem* sleek, each joint toothed at the end; teeth blackish at the point. POLLICH, ST.—*Root* black. *Stem* with fewer and deeper scores than that of *E. arvense*, some of the lower joints black, sometimes lengthened out for a considerable way beyond the going off of branches; knots blackish from the sheaths of leaves which rise from the joints. *Leaves* shorter and thicker than those of *E. arvense*, with mostly 5 and rarely 4 or 6 angles. *Sheaths* larger and more lax than those of *E. arvense*, teeth very short, tipped with black, which distinguishes it from the *E. arvense*. Mr. Woodw.—*Sheaths* very loose; both fewer and larger than in *E. limosum*; margin membranaceous. ST.—*Barren leaves* resemble those of the *E. arvense*, but the second leaves in the *E. arvense* are 4-sided, and the sheaths have 4 teeth, whilst in this species they are 5-sided, and the sheaths have 5 teeth. BOLT. WITH.—*Leaves* with 5 to 6 angles. *Sheaths*, teeth egg-spear-shaped, dark brown, or only dark brown at the end, with a membranaceous white border as deep again as that of *E. limosum* or *fluviatile*, corresponding in number to the angles. ST.

Paddock Pipe in Scotland.

Marshy and watry places.

P. June, July.

β LINN.—*Spikes* terminating the upper leaves as well as the stem. ST. Mr. Woodw. WITH.

Ray 5. 3, at p. 160.

This variety generally arises when the primary stem has been bitten off. BOLT. WITH.

EQUISE'TUM *fluviatile*. Stem scored: Leaves *river* generally undivided.—

Bolt. fil. 36; part of a barren leaf, *ib.* 37.—Matth. 1026, cop. in Dod. 73. 1, which repr. in Lob. obs. 461. 1; ic. i. 793, Ger. em. 1113. 1, and cop. in Park. 1200. 1.—Ger. 955. 1, repr. in C. B. th. 211.—Blackw. 217. 1 and 2.—Cam. epil. 770. B. C.—Garf. 258. A.

Fertile stems leafless, very thick, from 1 to 1½ foot high. Seeds bluish. Barren Stems from the same root, an inch thick; a yard high, soft, not furrowed, hollow, with smaller tubes round the large one; pale, growing black with age. Sheaths cloven into as many pointed teeth as there are leaves. Leaves thirty to forty in a whorl, deeply furrowed, 4-cornered; consisting of frequent longish joints. HALL.—Barren Stems whitish at first. LIGHTF.—Sheaths of the barren stems furrowed at the top with a well defined blackish brown band; teeth lighter brown, smaller and narrower than those of the fertile stems. Leaves from 3 to 15 inches long, very closely set. This species may be readily known at first sight by its great size, numerous leaves, and whitish stem. Mr. WOODW. ST.

Marshy and watery places, sides of rivers, ditches, pools, and lakes. [Not very frequent—cold springs—at Barnby near Lowestoft; between Bungay and Halefworth, St. Faiths Newton Bogs near Norwich. Mr. WOODWARD:]

P. May, June.

In some places they mix it with the food of cows to increase the quantity of their milk. Horses are not fond of it. But the Reindeer, which refuses hay, will eat it. LINN.

EQUISE'TUM *limosum*. Stem sometimes naked, smooth smooth.—

Bolt. fil. 38.—Ray 5. 2, at p. 160.—J. B. iii. 729. 3.

Closely allied to *E. fluviatile*: sometimes throwing out a few leaves. LINN.—A variety of *E. palustre*. Stems thicker, and taller; those of young flowering plants leafless, furrows much more numerous than those of *E. palustre*; teeth of the sheaths finely pointed, brown. HALL. n. 1677. β.—It differs also as follows: Whole plant smoother. Root yellowish. Stem brown below, scored; not furrowed. Sheaths not wider than the stem, the teeth of the lower brown, those of the upper black, and smaller than those of *E. palustre*. Leaves either straggling here and there, or in whorls on the middle of the stem. Head dark

brown, but not so dark as in *E. palustre*, also larger. For the above reasons I cannot think it a variety of *E. palustre*. Mr. Woodw. ST.—Stems exactly cylindrical, those which bear fructifications after flowering becoming leafy, and sometimes throwing out lateral branches; those which are barren tapering gradually to the end, and mostly continuing bare of leaves. The shoots of next year upwards of an inch long, from the side of the stem at the knots, which throw out fibrous roots. ST.

Common in the beds of rivers near the banks; also shallow ponds, and ditches in marshes. P. May, June.

rough EQUISE'TUM *hyemale*. Stem naked, rough, somewhat branched at the base.—

Bolt. fil. 39.—*Cam. epit.* 770. A.—*Ger.* 955. 2, *cop. in Ger. em.* 1113. 2, and *abr. in Park.* 1201. 7. 8, *right hand fig.*

Stem perennial, green, rough like a file. *Sheaths* of the joints pale; black at the base and edges; with imperfect teeth. LINN.—Stems furrowed with 18 or 20 rough angles, some of the joints 3 inches asunder. *Sheaths* with as many short blunt teeth as the stem has furrows. *Spike* terminating. LIGHTF. 650. ST.—Differs from *E. limosum* in being sea green, in the greater length of its joints, and in its extreme roughness. Mr. Woodward.

Shavegrafs. *Pewterwort.* *Dutch Rushes.*

Marshy and watery places, but not common. In a moist ditch, near Middleton, Warwickshire, and in a rivulet near Broad-stitch Abbey, Wiltshire.—Scippon and Craven, Lancashire, and in Rigby Woods. MERR.—Gamlingay Bogs, Cambridgeshire. [River side between Meavis Bank and Laswade near Edinburgh—near Norwich. Dr. J. E. SMITH.—Armingdale wood near Norwich. Mr. CROWE.—Just below Stone Bier Lin, near Lanerk, Scotland. ST.—Sexton Wood, Hedenham, near Bungay. Mr. STONE.] P. July, Aug.

The turners and cabinet makers use it to smooth their work.—It is wholesome to horses, hurtful to cows; and disagreeable to sheep. ♂ Stem with a few leaves. HALL.

Trag. 692. 1, *cop. in Lon.* i. 176. 1, and *J. B.* iii. 729. 1.—C. B. th. 248.

γ HUDS. — The figures referred to by Pet. are variety α, with which the only specimen that could be referred to it in Buddle's herbarium perfectly accords. DILL. in *R. syn.*

On a newly digged bog on Hounslow Heath. PET.

♂ With numerous lateral branches. ST.

Matth. 1028, *cop. in Dod.* 73. 3, which *repr. in Lob. obs.* 461. 2; and *ic.* i. 794. 1, and *cop. again in C. B.* 250.

When it has been broufed early in the spring, it puts out numerous lateral branches, Mr. GRIFFITH.

1288. OPHIOGLOS'SUM. Adders-tongue.

CAPSULES two rowed, with numerous joints placed transversely, and divided into as many cells as there are joints. When ripe every cell opens transversely.

SEEDS numerous; very small; somewhat egg-shaped.

ESS. CHAR. *Spike jointed; joints pointing 2 ways, opening transversely.* LINN.—*Fruifications of 1 valve, 1 cell, without a ring,* ADANSON, ST.—*opening transversely.* LINN.

OPHIOGLOS'SUM *vulga'tum.* Leaf egg-shaped. common
LINN.—Single. HALL.

Sheldr. 28.—Fl. dan. 147.—Fuchf. 577, cop. in Lonic. i. 103. f. B.

iii. 708. 2, Trag. 323.—Cam. epit. 364, cop. in Park. 506.—Garf.

425.—Tourn. 325. 1, the spike.—Bolt. 3.—Blackw. 416. 1. and 2.

—H. ox. xiv. 5. row 3. 1.—Barr. 252. 1.—Matth. 594, cop. in

Ger. 327.—Dod. 139. 1, repr. in Lob. obs. 471. 1; ic. i. 808.

2, Ger. em. 404. 1.—Fruetification, Hedwig. Th. 4. 20. 21. 22. 23.

Spike terminating, greenish yellow. POLLICH, ST.—*Stem solitary.*

Leaf egg-spear-shaped, embracing the fruit-stalk. Spike strap-shaped, at first green, when ripe brown. Mr. WOODW. ST. WITH.—*Leaf sometimes slightly lobed with small appendages on one or both sides.* BOLT.

Adders-tongue.

Moist cold meadows and pastures.—Meadows and sides of rivulets in the North of Yorkshire. CURT. — [Love Lane near Derby. Mr. WHATELEY.—Broadmoore near Birmingham. WITH.—Near Blimhill, Staffordshire. Mr. DICKENSON. — Bedingham near Bungay, Suffolk. Mr. STONE, Mr. WOODW.—Near Meltingham Castle, Suffolk, frequent. Mr. WOODWARD.] P. May, June.

♂ Fruit-stalk divided at the top, each branch supporting a spike; BOLT. ST.—and the spike itself sometimes dividing into 2 or 3. ST.

Blackw. 416. 3.—Bolt. 1. 1.—Lob. ic. i. 809. 1, repr. in Ger. em. 404.

2, and cop. in H. ox. xiv. 5. row 3. f. 2.—H. ox. ib. f. 3, 4, 5, 6.

—Cam. epit. 364, cop. in Park. 506, the lesser figures.

1289. OSMUN'DA. Moonwort.

CAPSULES globular, distinct, disposed in a bunch; opening horizontally.

SEEDS numerous; very small; egg-shaped.

ESS. CHAR. Spike branched. Fructifications globular.†

* Fruit-stalks rising from the stem at the base of the leaf.

common

OSMUN'DA *Luna'ria*. Stalk on the stem, solitary, Leaf winged, solitary,—

Blackw. 420.—Fl. dan. 18. 1.—Garid. 78, at p. 346.—Col. Phyt. 18.—Cam. epit. 643. 1.—Bolt. fil. 4.—Barr. 252. 3.—H. ox. xiv. 5. 1.—Lon. i. 77. 1.—Matth. 903.—Ger. 328. 2, repr. in Matth. a C. B. 647. 1.—Clus. ii. 118. 2, repr. in Dod. 139. 2, Lob. obs. 470. 3; ic. i. 807. 2, Ger. em. 405. 2, and cop. in Park. 507.—Fuchs. 483, cop. in J. B. iii. 710, and Trag. 914.

Within the base of the stem, early in the spring, may be found a complete rudiment of the next year's plant. LINN.—Wings of the leaf fleshy, crescent-shaped, semi-circular, and halberd-shaped. It so exactly resembles *Ophioglossum vulgatum* in habit and structure, that they ought by no means to be separated. Mr. WOODW. Sr.

Moonwort.

Mountainous meadows and pastures in Westmoreland; near Settle, Yorkshire; Scadbury Park, Kent; and Chiffelhurst Common, —Mear Bank, by Sykes Wood, Ingleton, Yorkshire. CURT.—North side of Brecon Hill, Worcestershire. NATH.—[Near Bury. Mr. WOODW.—Stratton Heath, Norfolk. Mr. CROWE.—On Coal Pit banks near Stourbridge. Mr. WALDRON HILL.] P. May—July.

β LINN.—Leaves and stalks several. CAM.

Cam. epit. 644.—Matth. a C. B. 647. 2.

Found in England. CAM. ib.

Leaves in pairs, doubly winged, wings cut. WILLD. n. 875.

γ LINN.

† ONS. *Osmunda Struthiopteris*, *Spicant*, and I believe *crispa*, do not belong to this genus; but *virginica*, *regalis*, and *cinnamomeus* correspond in structure with *O. Lunaria*. These latter, with the genus *Ophioglossum*, and perhaps *Onoclea*, which I have never seen in fructification, form a natural family of the tribe of FILICES, distinguishable by the want of the annular elastic ring, which is common to *Osmunda Struthiopteris*, and *Spicant*, and to all the Ferns properly so called, and which unites them and the genera *Acrostichum*, *Polypodium*, *Hemionitis*, *Asplenium*, *Blechnum*, *Lonchitis*, *Pteris*, *Adiantum*, and *Trichomanes* into another distinct natural assemblage. ST.

7 LINN.—Brynn. cent. 93; cop. in H. ox. xiv. 5. row 2, 3.—
Fl. dan. 18. 3.

Osmunda Lunaria β Hudf. Bolt. p. 5.

Westmoreland, and the Northern counties. R. syn.

* * The Leaf itself bearing the Fruifications.

OSMUN'DA *regalis*. Leaf doubly winged; with royal bunches at the end.—

Pluk. 181. 4.—Trag. 543.—Blackw. 324.—Tourn. 324, flowering part.—Fl. dan. 217.—Bolt. 5.—J. B. iii. 736.—Dod. 463, cop. in Lob. obs. 474. 1 and 2; ic. i. 813, Ger. em. 1131; and co. in Park. 1038, Ger. 971; and imit. in H. ox. xiv. 4. row 3. 1.—Garf. 273.—R. syn. ed. i. 1. 2. at p. 1, in its youngest stage of growth.

Leaflets the lateral ribs proceeding from the mid-rib; forked, parallel. Fruifications on the upper part of the central leaves. LIGHTF. ST. WITH.

Osmund Royal. Flowering Fern.

Watery places and boggy marshes. [About Cofgarne and Marazion in the mouths of old mines. Mr. WATT.—Bogs near Yarmouth. Mr. WOODW.—St. Faiths Newton Bogs near Norwich. Mr. CROWE.] July, Aug.

Impressions of the leaves are frequent in the nodules of ironstone found in the Coalbrook Dale iron works. It is the only species of an indigenous vegetable which I have ever seen in a fossil state. But it is a native of Virginia also. ST. — All the other impressions of Filices, which I have seen on ironstone, seem to be those of American plants. WITH.

The root boiled in water is very slimy, and is used in the North to stiffen linen instead of starch.

*** Leaves, some leafy, others bearing fruifications.

OSMUN'DA *Spi'cant*. Leaves spear-shaped, with rough winged clefts. Very entire, parallel, running into each other.—

ACROSTICHUM *Spicant*, which see.

OSMUN'DA *cris'pa*. Leaves more than doubly stone compound; leaflets alternate, roundish, cut.—

PTERIS *crispa*, which see.

1290. ACRO'STICHUM. Rustyback.

FRUCTIFICATIONS entirely covering the under surface of the leaf.

Ess. CHAR. *Fructifications covering the whole disk of the leaf.*

* *Leaf simply divided.*

forked ACRO'STICHUM *septentrionale*. Leaves naked, strap-shaped, jagged.—

Fl. dan. 60, but from an indifferent specimen.—*Lob. adv.* 17. 2, repr. in *ic.* i. 47. 1, and *Ger. em.* 1561. 8.—*Bolt. fil.* 8, from a garden specimen.—*Trag.* 537, cop. in *Lon.* i. 224. 5.—*Ger.* 343. 4.—*Park.* 1045. 8.—*J. B.* iii. 755. 2.

Fructifications, whilst immature, in short indistinct lines or dots. It is therefore, whilst young, an ASPLENIUM. *BOLT.* p. 7 and 12.

Clefts of rocks and old walls. Rocks in Edinburgh Park. *R. syn.* ST.—Tops of mountains in Wales, on Ingleborough, Yorkshire, and above Ambleside, Westmoreland. P.

** *Leaves with winged clefts.*

Spleenwort ACRO'STICHUM *Spi'cant*. Leaves spear-shaped, with winged clefts. Segments very entire, parallel, confluent at the base. LINN.—Fertile leaves winged; barren leaves with winged clefts. WITH.—

Hedw. Theor. 5, the fertile and barren leaf, with the parts of fructification dissected and magnified.—*Curt.* ii. 22.—*Fl. dan.* 99.—*Trag.* 550, cop. in *Lon.* i. 225. 1.—*Clus.* ii. 213. 1, repr. in *Dod.* 469. 1, *Lob. obs.* 475. 2; *ic.* i. 815. 2, *Ger. em.* 1140. 2; cop. in *Park.* 1042. 2, and *abr. in. H. ox.* xiv. 2. 23.—*Ger.* 978. 2.—*Bolt.* 6.—*J. B.* iii. 745. 2, and 1 perhaps.—*Cam. epist.* 665.—*Gif.* 49.—*Matth.* 923, leaves represented as hairy.

Flowering leaves much narrower than the barren ones. LINN.—Leaves similar to those of *Polypodium vulgare*, but slenderer; wings oblong, bowed upwards, the middlemost ones the largest. Flowering leaves longer, harder, and brown. *Fructifications* disposed on the under side of the leaf in 2 lines, parallel to the edges of the wings, but when ripe covering the whole under surface. Allied to *Pteris aquilina*, in the disposition of the fructifications. HALL. *enum. and hist.* ST.—*Fructifications* covered at first with a thin membrane. Capsule 2 valves, connected by an annular elastic cord of 1 cell, and containing many minute seeds. HEDWIG.—Barren Leaves, segments widest at the base, strap-spear-shaped, the lateral ribs forked, sometimes,

times, though rarely, terminating in minute scollops. *Fertile Leaves*, segments not half so broad as those of the barren ones, separate, though the confluence may almost always be traced, and towards the end of the leaf gives a waved appearance to the mid-rib. Mr. Woodw.—*Osmunda Spicant*. LINN. but it differs totally in structure from *Osmunda Lunaria*, *O. regalis*, &c. *Struthiopteris* of Haller, and several other authors; but its claims to form a new Genus are ill founded. ST.

Rough Spleenwort.

Groves and moist heaths. [St. Faiths Newton Woods, near Norwich—Commons in Hertfordshire. In the North frequent. Mr. Woodw.—At Hainford, Norfolk. Mr. Crowe.]

P. July—Sept.

♂ Leaves forked. ST.

ACRO'STICHUM *ilven'se*. Leaves almost doubly hairy winged, leaflets opposite, united, blunt, hairy underneath, very entire at the base.—

POLYPODIUM *ilven'se*, which see.

1291. PTE'RIS. Brakes.

FRUCTIFICATIONS disposed in a line, along the edge of the leaf, on the under side.

ESS. CHAR. *Fructifications in lines along the edge.*

PTE'RIS *crispa*. Leaves more than doubly compound; wings egg-oblong, ferrated, blunt; the fertile ones very entire. LINN. *sp. pl.*—Leaves more than doubly compound; wings alternate, roundish, cut. LINN.*

Bolt. 7.—Fl. dan. 496.—H. ox. xiv. 4. 4, and 27.—Fluk. 3. 2 and 3.—J. B. iii. 743.—H. ox. xiv. 5. 25, is said by Linnaeus to be the same plant in a state advancing to maturity.

Barren Leaves doubly winged, smooth, wings elliptical ferrated, except at the base; the fertile ones narrower, very entire, rolled back as in *Pteris*, but the disk bearing fruit as in the *Acrostichums*. LINN.—A plant forming the connecting link between the last of the *Osmunda's* and the *Acrostichums*. LINN.—Leaf-stalks waved, green. *Fructifications* in lines along the under margin of the wings, which is rolled back upon

* *Pteris heterophylla*. Linn. Sp. pl. is directed in the Mantissa, 505, to be referred to this species, but it is a very different plant.—See *Osmunda crispa*.

upon them, as in *Pteris aquilina*; after the discharge of the seeds increasing in breadth, so as to cover the whole disk, except the mid-rib. BOLT. p. viii. ST. WITH.—*Leaf-stalks* sometimes 6 or 7 inches long. *Leaf* about 3 inches long. Mr. WOODW.—If before the fructifications are ripe, the reflected sides of a wing are bent back, no fructifications will appear to view, but if the very margin which will be found also to be reflected be also bent back, the fructifications will be exposed to view disposed along the margin of the wing, as in the rest of the genus *Pteris*. ST.

Stone Fern. Crisped Fern. Parsley Fern.

On stones and rocks in Yorkshire. Westmoreland and Wales frequent.—Rocks about Buckbarrow Well, Longsledale, and here and there on the walls between that place and Kendal. CURT.—[Rocky banks and sides of roads, Cumberland. ST.—On heaths and old walls in the Northern counties abundantly. Mr. WOODW.—Cader Idris. Fructifications ripe in September. Mr. GRIFFITH.]

common PTERIS *aquil'na*. Leaves more than doubly compound. Leaflets winged. Wings spear-shaped; the lowermost with winged clefts; the upper ones smaller.—

Ger. 969. 2.—Bull. 207.—Bolt. 10.—Fuchf. 596, misprinted 569, cop. in Dod. 462. 2, and imil. in Trag. 542.—Matth. 1291.—Garf. 272.—Lob. obs. 473. 2, repr. in ic. i. 812. 2, Ger. em. 1128. 2, and cop. in Park. 1037, misprinted 1039.—H. ox. xiv. 4. 3.—Cam. epit. 992.

The Root cut obliquely presents a kind of representation of the Imperial Eagle. LINN.—Whence Linnæus has named it the *P. aquilina* or eagle brakes,

Female Fern.

Heaths and woods.

P. Aug.

The root dried, powdered, and given in doses of 3 or 4 drams, is a secret to kill the tape-worm. A tolerably pure alkali is obtained from the ashes. The common people in many parts of England mix the ashes with water and form them into balls; these balls are afterwards made hot in the fire, and then used to make lye for scouring linen.—It makes a very durable thatch; and is an excellent litter for horses and cows. Where coal is scarce, they use it to heat ovens and to burn limestone; for it affords a very violent heat. In the more inhospitable climates, bread is made of the roots. The Fern Moth feeds upon it.

β HUDS.—Pluk. 182. 1.—Blackw. 325.

Rocks on the western coast, and on walls at Westminster and Grays Inn. On being cultivated in the Chelsea garden, it turned out the second year to be variety α. DILL. in. R. syn.

1295. ASPLE'NIUM. Spleenwort.

FRUCTIFICATIONS disposed in straight lines on the under surface of the leaf.

ESS. CHAR. *Fructifications scattered in lines on the surface of the leaf.*

* *Leaf simple.*

ASPLE'NIUM *scolopen'drium*. Leaves undivided, *Harts-tongue* heart-tongue-shaped; very entire. Stalks hairy.—

Curt. i. 1.—*Tourn.* 319.—*Blackw.* 138.—*Bull.* 167.—*Bolt.* 11.—*Ger. &c.*—*Garf.* 346.—*Trag.* 549.—*Fuchf.* 294, *cop. in J. B.* iii. 756, and *imit. in Clus.* ii. 213. 2, which *repr. in Dod.* 467. 1.—*Cam. epit.* 579.—*Walc.*—*Lob. obs.* 468. 3, *repr. in Ger. em.* 1138. 1, and *cop. in Park.* 1046. 1. *f.* 2, and *H. ox.* xiv. 1. 1.—*Lon.* i. 224. 3.—*Matth.* 831.

Harts-tongue.

Moist shady rocks, mouths of wells, old walls, and in the fissures of rocks on the tops of most of the high mountains in Yorkshire.

CURT. P. Aug. Sept.

β LINN.—Leaves curled at the edge. ST.

J. B. iii. 757. 3.

[Near a petrifying spring by the side of a rivulet at the bottom of Garn Dingle, three miles from Denbigh. Mr. GRIFFITH.]

ε LINN.—Leaves with many clefts at the end. ST.

Clus. ii. 213. 3, *repr. in Dod.* 467. 2, *Lob. obs.* 469. 1; *ic.* ii. 805. 2, *Ger. em.* 1138. 2, *cop. in Park.* 1047. 1, *J. B.* iii. 757. 2, and *H. ox.* xiv. 1. row 1. 2, and *imit. in Ger.* 976. 2.

Phyllitis multifida. R. syn. 117.

In a lane near Swaneling, not many miles from Southampton.

Ger. em.

γ Leaves with many clefts at the edges.

Tourn. 451.

Phyllitis polychides, &c. R. syn. 117.

In woods. BOBART in R. syn. 117.

** *Leaf with winged clefts.*

ASPLE'NIUM *Ceterach*. Leaves with winged common clefts; lobes alternate, running into one another; blunt.—

Bull. 333.—*Walc.*—*Garf.* 212.—*Barr.* 1052, 1051, 1043, 1044.—*Tourn.* 318.—*Trag.* 551.—*Dod.* 468, *repr. in Lob. obs.* 470. 1; *ic.* i. 807. 1, *Ger. em.* 1140. 1, and *cop. in Park.* 1046. *f.* 1, *Ger.*

Ger. 978. 1, *Matth. a. C. B.* 646. 1, and *H. ox.* xiv. 2. row 3. f. 4.—*Balkhu.* 216.—*J. B.* iii. 749.—*Bolt.* 12.—*Matth.* 899.—*Cam. epit.* 640.

Leaves so covered underneath with scales as to conceal the fructifications. LINN.—*Leaves* many from a root, 3 to 6 inches long, the hollows between the lobes of the same size and shape as the lobes, edges somewhat bent back when the fructifications ripe. Mr. Woodward,

Old walls and clefts of moist rocks. About Bristol plentifully. [At Bury, at Atheridge, Hertfordshire. Northern counties frequent. Mr. Woodward.—Heydon, Norfolk. Mr. Bryant.]

*** *Leaves winged.*

Maidenhair ASPLE'NIUM *Tricho'manes.* Leaves winged. Wings nearly circular, scolloped.—

Walc.—*Bolt.* 13.—*Bull.* 185.—*Tourn.* 315. A. D. E.—*Fl. dan.* 119.—*Blackw.* 370.—*Garf.* 128. B.—*Trag.* 530. 1, *cop. in Lonic.* i. 212. 1.—*Cam. epit.* 925, *cop. in Park.* 1051.—*Matth.* 1202.—*Dod.* 471. 1, *repr. in Lob. obs.* 471. 2; *ic.* i. 809. 2, *Ger. em.* 1046, and improved in *H. ox.* xiv. 3. row 1. 10.—*Fuch.* 796.—*Ger.* 985.—*Hedwig. Th.* 7. 37, a leaflet magnified.

Roots black, fibrous. *Leaf-stalks* glossy, black. *Flowers* in 3 to 5 lines. *Spleenwort.* *Miltwaste.*

Common Maidenhair.

Old walls, rocks, and shady stony places.

P. May—Oct.

♂ HUDS.—*A. viride* γ which see.

γ Wings lobed and cut. BOLT.—*Bolt.* 2. 2.

Green-ribbed ASPLE'NIUM *viride* Leaves winged. Wings nearly circular, scolloped, lopped at the base. HUDS.

Bolt. 14, excellent, but Mr. Woodward thinks the scollops of the leaves not large nor deep enough.

Leaf-stalk of a pale green, sometimes brownish towards the root, and in some specimens brown and glossy as in *A. Trichomanes*. Wings rhomboidal, fixed to the leaf-stalk by one of the corners, the upper and lower sides of the base very entire, the other two scolloped. BOLT.—Wings more lopped at the base than in *A. Trichomanes*. *Leaf-stalk* green, which seems to be the only certain character by which it is distinguishable from *A. Trichomanes*. Mr. Wood.—Wings not so circular as those of *A. Trichomanes*, the lower side of the base being lopped, much more deeply scolloped, thinner. Mr. Woodward.

A. Trichomanes γ Linn.

Moist rocks on the mountains of Wales, Yorkshire, and Westmoreland. [On an old wall at Black Bank near Leeds. Mr. Wood.—On Ingleborough, BOLT.—near the summit, and in Borowdale. Mr. Woodward.]

P. June—Sept.

♂ HUDS.

♂ HUDS.—Wings lobed and cut. ST.

H. ox. xiv. 3. 13.—Pluk. 73. 6.—Tourn. 315. C. F.—Ger.

975.

Scotland. BOBART in H. ox.—Jersey. PLUK.

γ Leaf branched. BOLT.

Bolt. 2. 3.—H. ox. xiv. 3. 11.—Ger. 985. 2, cop. in J. B. iii.

755. 1.

A. *Trichomanes ramosum*. Linn.—A. *Trichomanes* β (HUDS.)

On all the high rocks of Caernarvonshire, a stone wall in a garden at Maidstone, Kent, and on limestone rocks in Craven, Yorkshire.—On the rocks below Ogden Kirk on the opposite side of the Clough. BOLT.

ASPLE'NIUM *mari'num*. Leaf winged. Wings *sea* inversely egg-shaped; ferrated; hunched and blunt on the upper edges, and wedge-shaped at the base.—

Pt. gaz. 91. 1.—Bolt. 15.—H. ox. xiv. 3. 25.—Pluk. 253. 5.—

Walc.—Lob. obs. 474. 3, repr. in ic. i. 814, Ger. em. 1143. 4;

and cop. in Park. 1045. 7.

Leaves spear-shaped, dark green above, paler underneath. BOLT.
Mr. WOODWARD.—Stalks reddish brown. Wings in some specimens spear-shaped, acutely scolloped, the scollops equal in number to the lines of fructification, lobed at the base on the upper side. Mr. WOODWARD.

On rocks generally on the sea shore,—about Prestholm island near Beaumaris, at Llandwyn in Anglesea, about the castle of Hastings, Suffex, and in Devonshire, Cornwall, and Cumberland.—In a stone quarry close to the road from Warrington to Winwick, Lancashire. BOLT.

P. June—Sept.

β BOLT.—Wings deeply cut.

Sibbald Scot. ill. t. 3. f. 1. 2.—confessedly cop. in Bolt. 2. 4, but not an exact copy—I have not seen the plant. BOLT.

Plants corresponding to Sibbald's figures we found in the Coves at Weems in Scotland. LIGHTFOOT.

Adiantum trapeziforme, HUDS. which see.

**** Leaves doubly compound.

ASPLE'NIUM *Ru'ta mura'ria*. Leaves doubly *Wall-Rue* compound, divisions alternate. Leaflets wedge-shaped, finely scolloped.—

Sheldr. 68.—Bull. 195.—Walc.—Cann. epit. 735.—Fl. dan. 190.—

Tourn. 317. 1.—Bolt. 16.—Blackw. 219.—Garf. 128. a.—

Fuchs. 730, cop. in J. B. iii. 753, Lon. i. 221. 1 and 2.—Trag.

530. 2.—Dod. 470, repr. in Lob. obs. 472. 1; ic. i. 811. 1, Ger.

em.

em. 1144. 3, and cop. in Park. 1050. 4, and H. ox. xiv. 5. 22.
—Ger. 983.—Matth. 1041.

Stem bare for near half its length. *Frustrifications* in 2 or 3 rows, on each side of the rib of the leaf. BOLT.

White Maidenhair. Wall Rue. Tentwort.

Old walls and moist crevices of rocks. [Southwold Church, Suffolk, Long Stratton Church, Norfolk. Mr. STONE, Mr. WOODWARD.]
P. June—Oct.

black ASPLE'NIUM *Adiantum nigrum*. Leaves almost triply winged. Leaflets alternate. Wings spear-shaped, between cut and ferrated. LINN.—Leaves triangularly spear-shaped. Wings egg-shaped. HUDS.

Fl. dan. 250.—Garf. 126.—Blackw. 220.—Bolt. 17. i and 3.—

Dod. 466. repr. in Ger. em. 1137.—Ger. 975. 1.—H. ox. xiv. 4.

16.—Lob. ic. i. 810. 2, cop. in. Park. 1049. 2.

Seeds saffron coloured. LINN.—Lobes, the extreme ferratures so acute as almost to appear fringed. Mr. WOODW.—Stalks black, glossy. *Frustrifications* 3 to 7 on each wing.

Black Maidenhair. Oak Fern.

Shady places and old walls.

P. April—Oct.

β HUDS.—Pluk. 282. 3.

Wings long, divided into very fine and longish segments. SHERARD in R. syn.—Wings with hair-like segments. PLUK.—*Frustrifications*, none discovered. Possibly a variety of *A. Adiantum nigrum* owing to a very shady situation, but if a variety it is a very extraordinary and beautiful one. DILL.

Filix non ramosa, &c. Pluk. alm. p. 150. par. the last but one, as corrected according to mant. p. 78. par. 4.

Mountains of Mourn in the county of Down, Ireland. R. syn.

γ HUDS. seems to be only a young plant of *A. Adiantum nigrum*. DILL.—*Filix pumila petræa*, &c. Pluk. amalth. p. 91. (ST.)

Hilly parts of Suffex. Dill. in R. syn.

δ BOLT.—*Asplenium lanceolatum* of Hudson, which see.

spear ASPLE'NIUM *lanceolatum*. Leaves doubly winged, spear-shaped. Leaflets alternate. Wings inversely egg-shaped, cut and scolloped. HUDS.

Bolt. 17. 2,* conjectured by Mr. B. to be the plant, and accords with Mr. Hudson's character.

Filix

* Differs very little from *A. Adiantum nigrum*. Wings not near so circular as in my specimens. Mr. WOODWARD.

Filix elegans, &c. R. syn. 127, referred to by Mr. Hudson with a mark of doubt, appears to me to be a variety of *A. Adiantum nigrum*. Mr. WOODW.—(*A. Trichomanes ramosum* of Linn. referred to by Mr. Hudson, cannot be the plant, if we are to depend on Linnæus's reference to *Trichomanes ramosum*. J. B. hist. iii. p. 755.) ST.

On old walls and rocks about St. Ives, and other places in Cornwall. HUDS.—On an old wall in the village of Wharfe, Yorkshire. BOLT. P. May—Sept.

1296. POLYPO'DIUM. Polypody.

FRUCTIFICATIONS disposed in distinct circular dots on the under surface of the leaf.

ESS. CHAR. *Fructifications in roundish dots scattered over the surface of the leaf.*

* *Leaves with winged clefts. Lobes united.*

POLYPO'DIUM *vulga're*. Leaves with winged common clefts; wings oblong; somewhat serrated; blunt. Root scaly.—

Ludw. 18.—Curt. i. 12.—Bolt. 18.—Bull. 191.—Blackw. 215.—Tourn. 316.—Walc.—Garf. 466.—Fuchf. 588, cop. in Trag. 540, and Dod. 464. 2, which repr. in Ger. em. 1132. 2.—Tourn. 316.—Ger. 972.—Matth. 1293.—Dod. 464. 1, repr. in Lob. obs. 475. 1; ic. i. 814. 2, Ger. em. 1132. 1, and cop. in Park. 1039, 1, and H. ox. xiv. 2. row 1. 1.—Ger. 974. 1.—Carr. epit. 993.—Lon. i. 224. 1.

Leaves finely serrated at the edge. ST. WITH.—Fructifications yellowish brown, in rows, parallel to the rib of the wings. WITH.

On old walls; shady places; and at the roots of trees.

P. June—Oct.

The root is sweetish: by long boiling it becomes bitter. When fresh it is a gentle purgative. An infusion of six drams of it in half a pint of boiling water may be taken at twice.

2 HUDS.—Wings doubly serrated.—Barr. 38.

Walls of Windfor Castle. R. syn.—[Worcestershire. ST.]

7 Wings lobed. BOLT.

Bolt. 2. 5. b. a portion of a leaf.

In a wood near Bingley, Yorkshire. Mr. ALEXANDER.

c Wings with winged clefts. ST.

Variety 7 of LIGHTF. and HUDS.

H. ox. xiv. 2. 8.—Pluk. 30. 1.—Bolt. 2. 5. (a) a portion of the leaf.

In

In this state it never produces fructifications. The same is observable of the waved variety of *Asplenium Scolopendrium*. LIGHTF.

—On a rock in a wood near Denny's Powys Castle, not far from Cardiff, Glamorganshire. R. *syn.* P. June—Oct.

jagged POLYPO'DIUM *ca'mbricum*. Leaves with winged clefts. Wings spear-shaped, ragged with winged clefts, ferrated.—

P. Vulgare γ which see.

* * Leafwinged.

Spleenwort POLYPO'DIUM *Lonchitis*. Leaves winged. Wings crescent-shaped, declining, with fringe-like ferratures. Leaf-stalks with chaffy scales.—

Fl. dan. 497.—*Tourn.* 314.—*Bolt.* 19.—*Matth.* 922, *cop. in Ger.* 979, and *Ger. em.* 1140. 3.—*Pluk.* 89. 6.—*H. cx.* xiv. 2. *row* 3. 1.—*Cam. epit.* 664. *cop. in Park.* 1042. 1, and *J. B.* iii. 744.—*Lon.* ii. 34. 1.

Rough, and of a harder texture than the other Ferns. HALL.—This plant and *P. aculeatum* bear so striking a resemblance to each other in figure, colour, substance, manner of growth, and general habit, that I have been sometimes tempted to ask whether it be possible that *P. Lonchitis* might be a variety of *P. aculeatum*. BOLT. ST.—Leaves in circles round the crown of the root, which is rough with the remains of decayed leaf-stalks, keeled, from the wings being bent upwards on each side the leaf-stalk. Wings so closely placed as to be tiled, the lower edge covering the upper edge of the next beneath, ferratures frequently but irregularly terminating in short spine-like teeth, furrowed underneath with veins, the margin of the upper half of the base of each wing parallel to the general leaf-stalk. Leaf-stalk furrowed above. Fructifications disposed in 2 parallel lines on each wing, with 5 or 6 dots forming 2 lines on the lobe. MR. WOODW. ST.—Wings, the lowermost frequently distinct, shorter, and broader, the lower half nearly equal to the upper, and sometimes almost forming a lobe; doubly ferrated, the larger ferratures tapering to a sharp point, the intermediate ones from 1 to 2, bluntish. ST.—Cultivation however does not change the appearance of *P. Lonchitis*. ST.—Fructifications 12 pair or more.

Royal Polypody. *Great Spleenwort.*

Clefts of rocks. On the highest mountains of Caernarvonshire; on Snowdon; on Glydar near Llanberis, and at the foot of the rocks among the Highland mountains. P. May to Sept.

* * * Leaves

* * * Leaves mostly doubly winged; their wings being confluent at the base, so that they are rather half winged than really doubly winged.

POLYPO'DIUM *fontanum*. Leaves winged, spear- rock shaped. Leaflets roundish, finely cut. Stem smooth. —

Fluk. 89. 3.—*Lob. adv.* 361. 2, repr. in *ic.* i. 810. 1.—*Bolt.* 21, mid-rib well expressed.—*Barr.* 432. 1.—*Fluk.* 89. 2 and 3.*—*Ger.* 980. 2.—The above is given from an examination of a fine specimen gathered by Mr. Dickenson, at St. Baume, in Provence.

Leaves almost doubly winged. Its habit that of *P. fragilis*, but the leaflets closer together, and not so deeply subdivided. Fructifications in larger dots, and proceeding not from a roundish scale, but from an oblong white narrow valve or chink. LINN.—Stem green, naked for about an inch from the root. BOLT.—Plant 3 or 4 inches high. Wings alternate, 3 or 4 lines long, either winged or wing-cleft. Leaflets deeply cut into 2 or 3 pointed lobes. Mr. WOODW.—Second Leaves distinct, but not remote, so deeply divided, that if their mid-rib is compared with the general mid-rib, the whole leaf may be considered as doubly winged. ST.

Old walls and rocks above Hammersham Church, and in rocky places near Wybourn, Westmoreland.—Also in Buckinghamshire. BOLT. P. June—Sept.

POLYPO'DIUM *ilvense*. Leaves almost doubly hairy winged; Leaflets opposite; united; blunt; hairy underneath; very entire at the base. LINN.—Stem hairy. WITH.

Bolt. 9.—(*Fl. dan.* 391, is referred to by Linn. but omitted, and I think properly, by Mr. Hudson.—*J. B.* iii. 748. 1, cop. in *Park.* 1039. 3, is described as being 12 inches long.)

Scarcely more than a finger's length. Stalk greenish, not blackish purple. Nearly allied to the Polypodies in its fructifications being disposed in dots, but these are very much crowded. LINN.—Leaves spear-shaped. Leaflets remote below, above near together, between wing-cleft and cut, segments oblong-roundish, very entire, with whitish scattered hairs on both sides, chiefly towards the edges. Dots surrounded with whitish hairs, spreading over the dot in various directions. ST.—Stem hairy. Leaflets, from 7 to 15 pair; Lobes 5 or 6 pair. BOLT. WITH.

Acrostichum ilvense. *Syst. pl.* Polypodium fronde duplicato pinnata, &c. *Fl. Suec.* 850. 938.

Clefts of rocks. Near the top of Clogwyn y Garnedh, facing N. W. directly above the lower lake. R. syn. HUDS. [in company with Mr. DAVIES.] P. July—Sept.

* Which last not so good. Mr. WOODWARD.

alpine POLYPO'DIUM *alpi'num*. Leaves almost doubly winged. Leaflets distant, heart-shaped. Segments scoloped at the edge; woolly underneath. Stem smooth. WITH.

Pluk. 89. 5.—*H. ox.* xiv. 3. 23.—*Bolt.* 42.—*Pluk.* 179. 4.—*Barr.* ic. 432. 2.

Doubly winged. Leaflets blunt, distant, woolly underneath. Fl. *Lapp.* 383. Leaflets 6 or 7 pair; lobes 2 pair; terminated by an odd one. BOLT.

Acrostichum alpinum. BOLT. 76.

On Alpine Hills, but rare. LINN.—High mountains, Scotland and Wales. BOLT.

wood POLYPO'DIUM *Phegopteris*. Leaves almost doubly winged; the lowermost leaflets bent back; each pair united by a four-cornered little wing.—

Bolt. 20.*—*H. ox.* xiv. 4. 17. f. 3, the quadrangular wing not expressed.—(*Fl. dan.* 497, is *P. Lonchitis*.)

Leaflets spear-shaped, with winged clefts. LINN.—When the Leaflets alternate, the quadrangular wing is less obvious. ST.—Leaflets, ribs, and often the whole leaf and edges hairy. HALL. ST.—Lobes, the lowermost pair shorter than those above. ST. BOLT.—Plant sometimes 19, and stalk 12 inches high. Leaflets, the lowermost pair not confluent as all the rest, and placed one and a half inch from the pair above it; in a vigorous plant bent almost back to back, in consequence of which, when dried and gummed on paper, they form an acute angle with the stalk, and might lead those who had not seen the plant growing, to suppose they grew in the same place with the rest. Lobes semi-elliptical. Mr. WOODWARD.

Clefts of rocks in moist and shady places and woods, in Yorkshire, Westmoreland, Devonshire, and the Lowlands of Scotland. [Barrowfield Wood near Kendal, by the fall of Lodore near Derwent Water, and in several woods in the North. Mr. WOODW.—Woods in the Highlands and Lowlands. Westmoreland. ST.]

P. June—Oct.

crested POLYPO'DIUM *crista'tum*. Leaves almost doubly winged. Leaflets egg-oblong. Wings bluntish, sharply serrated towards the end.—

Mull.

* The lowermost pair of leaflets touch the pair above, and their bending back to back not expressed. Mr. WOODW. ST.

Mull. 2. 4, almost trebly winged, 2. 2? * wings not quite so deeply divided. The points of the serratures not sufficiently fine.—Fluk. 181. 2.—Fluk. 180. 5, in its middle state of growth.—Bolt. 23, serratures represented as ending in hairs.—Fl. dan. 707, is a tolerable representation of the upper part of a large plant, but the points of the serratures too long.—Mapp.

Fructifications on the upper but not on the lower leaflets; LINN.—but with us on all the leaflets, when the plant is come to maturity. LIGHTF. MR. DICKENSON.—Leaf, when the plant arrives at maturity, trebly winged. MR. DICKENSON.—Lobes hooked. Serratures pointing inwards. SCHREB. ST.—Leaves in moist and rich soils upright, 3 or 4 feet high, and trebly winged, the lower pair of leaflets shorter than those above; on dry rocks and banks 10 or 12 inches high, the first pair of leaflets the largest, and the only pair that are triply divided. BOLT.—Serratures ending in short awns. MR. WOODWARD.—Points of all the serratures bowed inwards. ST.

Polypodium Mull. frid. n. 841, and 845.—*P. spinulosum*. Fl. dan. 707. as is evident from the reference to the Fl. frid. In the fig. in the Fl. dan. none of the wings are cut, but they are described as being so in the specific character. ST.

Moist woods and shady places, in a gravelly or rocky soil, from the chinks of moist rocks and old walls; and in marshy places at the roots of hollow oaks. [Bogs on Birmingham Heath. WITH.]

P. June—Sept.

POLYPO'DIUM *Oreo'pteris*. Leaves almost doubly heath winged, spear-shaped. Leaflets very entire, bluntish; fructifications at the edges.—

Bolt. 22.

Stem smooth, with 2 furrows; about a foot high; wings alternate; leaflets spear-shaped, bluntish. WILLDENOW. 291. n. 883.—Leaflets, lower ones small, triangular, remote; upper ones near, spear-shaped. VOGLER.—Root large, scaly. Fructifications always marginal, both in the young and old state, and never become confluent; leaflets always flat. Four times as large as the *P. Thelypteris*. DICKSON. Transf. L. S. 1. 182.

Polypodium montanum. Vogler.—*P. Thelypteris*. Hudf. Lightf. Bolt. In Wales. North of England. On dry hills through all Scotland. DICKSON. P.

* Haller says, from a specimen sent him by Muller, that it is *P. Filixfemina*.

**** Leaf doubly winged.

male POLYPO'DIUM *Fi'lix mas.* Leaves doubly winged. Wings blunt, finely scolloped. Stalk chaffy.—

Bull. 183.—Gunner 1. 4, portion of a leaf.—Tourn. 310, upper surface; 311, under surface; 312, fructifications.—Bolt. 24.—Ger. 969. 1.—Fuchs. 568, cop. in J. B. iii. 73 8. 1, and Dod. 462. 1.—Blackw. *323, good, except that the wings are not scolloped.—Garf. 271.—H. ox. xiv. 3. 6.—Matth. 1290, imit. in Cam. epit. 991, which cop. in Park. 1036.—Lob. obs. 473. 1, repr. in ic. i. 812. 1, and Ger. cm. 1128.—Lonic. i. 223. 3.

Fructifications kidney-shaped. LINN.—Wings semi-elliptical, Mr. Woodw.—often ferrated to the base. ST.—Fructifications from 7 to 3 on each leaflet. WITH.

Male Polypody. Male Fern.

Woods, heaths, and stony places.

P. June—Oct.

The Siberians boil it in their ale, and are fond of the flavour which it imparts to it. The powder of the root is Madame Nouffer's celebrated remedy to expel the tape-worm. She gives the patient a liquid lubricating supper, and if costive a common glyster. Early next morning two or three drams of the root in powder are exhibited mixed with water. If thrown up it must be repeated. The patient must fast two hours, and then take a drastic purge. See Dr. Simmon's account of the *Tænia*.

A horse eat it. ST.

female POLYPO'DIUM *Fi'lix fem'ina.* Leaves doubly winged. Little wings spear-shaped, with winged clefts, pointed.—

Pluk. 180. 4.—H. ox. xiv. 3. 8.—Bolt. 25.—Munt. 288. 84.—J. B. iii. 738.—Hedwig. *Theoria*. 7. 34, a leaflet magnified.—(Blackw. 325, is *Pteris aquilina* before it has reached its state of maturity.)

Fructifications egg-shaped, somewhat fringed, solitary. LINN.—Lobes deeply cut with one or two divisions; teeth often ending a short awn. Mr. Woodward.—Very brittle. The most elegant of all our Ferns. One dot of fructifications on each little lobe of the leaf. BOLT.

Moist and shady marshy places, moist rocky woods, and about brooks and rivulets, and on heaths.

P. June—Sept.

β Pluk. 284. 3, cop. in Brit. herb. 30, a single wing. Elegant Staffordshire Fern, the points of the leaves finely cut. Pluk. 151.

Found by Sir T. Willoughby on Lichfield Minster. Brit. herb.

POLYPO'DIUM *Thelypteris*. Leaf doubly winged. *marsh*

Leaflets with winged clefts, very entire; quite covered with dust on the under side. —

Hedwig. 6. — Schmidel. 11. 1. 2. — Bolt. 43. — Fl. dan. 760. — Mapp.

7. a. at p. 106. — J. B. iii. 739. 1. — Ger. 981. 3. — Ger. em.

1135. 1. cop. in Park. 1041. 1.

Its habit that of *P. Filix mas*. Stem smooth. Old leaflets covered with seed-vessels. Barren leaves broader and blunter. LINN. — Root small, creeping. DICKSON. — Leaflets alternate, confluent; in the barren plant broader; in the fertile plant, the edges bent back when the fruit ripens. Mr. WOODWARD. — Leaves mostly doubly winged. Leaflets very entire. WILLDENOW. 292. n. 884. WITH.

Bogs; native of England. LINN. — About Norwich. Mr. DICKSON; — [St. Faiths Newton Bogs near Norwich. Mr. PITCHFORD. — Bogs near Bungay, Suffolk. Mr. WOODWARD.] P. July.

♂ Leaves almost doubly winged, spear-shaped; leaflets crowded; lobes blunt, serrated; stalk chaffy.

P. fragrans. HUDS. LINN. syst. pl.

Its habit that of *P. F. mas*, but far smaller. Leaflets more closely crowded. Lobes on the sides blunt, more deeply serrated. LINN. — I have seen a perfect specimen of *P. Thelypteris* only six inches high, which I suspect to be Hudson's plant. ST. — I suspect the *P. fragrans* of Mr. Hudson to be a variety of the *P. Thelypteris*; the seeds taking root in rocks, produce small plants, having the parts crowded. BOLT.

Moist clefts of rocks near Kewick, Westmoreland. HUDS.

P. July — October.

POLYPO'DIUM *aculeatum*. Leaves doubly winged. *prickly*
Wings crescent-shaped, with fringe-like teeth. Stalk
chaffy. —

Mill. ill. — Bolt. 26. 1 and 3. — H. ox. xiv. 3. 15. f. 1. — Pluk. 179.

6, a young plant only winged. — Pluk. 180. 1, fully grown. — Pluk.

180. 3, in its middle state of growth.

Lobes awned at the end, and one or two of the serratures awned. Mr. WOODWARD. — Leaf of plants not arrived at an age sufficiently mature to produce fructifications simply winged, in which state it corresponds with the character of *P. Lonchitis*, but it is not of so thick and rigid a texture, and the wings are more cut. ST. See BOLT. fig. 2. plate 26. WITH.

Woods and shady places.

P. June — Oct.

♂ HUDS. seems to be the plant in its fullest perfection. ST.

γ HUDS. — Leaves sprinkled with a moss-like down. PLUK.

♂ The uppermost wing of the lowermost pair of each leaflet considerably larger than the rest, ST.—though this seems always more or less the case. WITH.

Polypodium lobatum. HUDS. which see.

ε General midrib forked towards the top. ST.

lobed POLYPO'DIUM *lobatum*. Leaves doubly winged. Little wings egg-shaped, with fringe-like serratures, eared at the upper side of the base. Stalk chaffy. HUDS.

Fluk. 180. 3.—(*Bolt.* 26. 2, is a still younger plant of *P. aculeatum*, than what Mr. Hudson appears to intend by his *P. lobatum*.)

Very nearly allied to *P. aculeatum*. Possibly not a distinct species. HUDS.—It should seem to be merely a younger plant, DILL. LIGHTF. MR. WOODWARD, ST. WITH.

Shady places, and hedges.

P. June—Sept.

stone POLYPO'DIUM *rhæticum*. Leaves doubly winged. Leaflets and wings distant, spear-shaped. Serratures taper-pointed.—

Bolt. 45.—*H. ox.* xiv. 4. 28.—*Fluk.* 89. 4, is referred to by Mr. Hudson and Bolton, but the wings in that figure are opposite. It seems to be a delicate plant of *P. cristatum*.

Very closely allied to *P. cristatum*, but much smaller. I am in doubt whether it be a distinct species. HUDS.—Not one fourth so large. Wings never more than with winged clefts; serratures not so deep, or pointed, and taper-pointed, not awned. MR. WOODWARD.—About a foot high. Upper leaflets of the wings larger than the opposite lower ones, which at once distinguishes it from the *P. fragile*. BOLT. WITH.

In Scotland. MR. DICKSON.—On stony mountains in Westmoreland. On the top of Glyder mountain, on the side which hangs over Llyn Ogwan Lake; and near Phainon Vellon. [On walls near Amblefide, Westmoreland. MR. WOODWARD.] P. June—Sept.

brittle POLYPO'DIUM *fragile*. Leaves doubly winged. Leaflets distant. Little wings roundish, cut.—

Bolt. 46 and 27.—*Fluk.* 180. 5.—*Seguier.* i. 1. 1.—*Barr.* 432. 2.—*Fl. dan.* 401.—*J. B.* iii. 741. 2.—*Dod.* 465, retr. in *Ger. em.* 1135. 2, wings too broad if the plant.

Stalks smooth, very tender, extremely brittle, reddish at the base. Leaflets winged, nearly opposite, 10 to 15 pair. Wings 6 to 8 pair, distinct, with three or more lobes on each side, veined. Frustrifications 4 to 8 on a wing, sometimes covering almost the whole under side of the leaf, WEIS, ST. WITH.

Dry stony places, in the Northern parts of the island; in Wales; and about Bristol.—On old castles and stone fences, about Settle, Yorkshire. [Rocks at Matlock, Derbyshire, and the Northern counties. Mr. WOODWARD.] P. June—Sept.

β HUDS.—Smaller. Leaves divided into longer and finer segments. RAY.

On the highest rocks of Snowdon in a place called Clogwyn du yn yr Ardhu. LLHWYD in *H. ox.* iii. 581. n. 31.

γ Wings oblong, cut, ferrated. ST.

Specimen from the garden of the late Mr. More of Shrewsbury. Mr. DICKENSON.

δ Taller and slenderer. Rib pale green. Leaflets more remote. Whole plant lighter, more transparent, and more delicate. BOLT. ST. *Bolt.* 2. 6.

In moist and very shady situations in the deep fissures of moist rocks where the sun was excluded. BOLT.—[On the moist rocks of Crib y Dŷ Ddefcil near Llanberris, Caernarvonsh. Mr. GRIFFITH.]

***** *Leaves more than doubly compound.*

POLYPO'DIUM *Dryop'teris*. Leaves more than *branched* doubly compound. Leaflets in threes, doubly winged.—

Bolt. 28.—*Trag.* 538, *cop.* in *J. B.* iii. 741. 1, and *imit.* in *Lon.* i. 224. 2.—*Ger.* 974. 2.—*Clus.* ii. 212. 1, *repr.* in *Ger. em.* 1135. 3, and a branch *cop.* in *Park.* 1044, middlemost figure, and the whole imitated in *H. ox.* xiv. 4. 19.—(*Fl. dan.* 759, with wings distinct at the base, and sharply ferrated, cannot surely have been intended for it.)

Fruclifications placed near the rib of the lobe of the leaflet. BOLT. WITH.

Dry stony places in Yorkshire, Lancashire, Westmoreland, and Scotland. [Amongst the rocks at the fall of Lodore on the side of Derwent-water, Cumberland. Mr. WOODWARD, ST.—Barrowfield Wood near Kendal, and other rocky woods in the North. Mr. WOODWARD.] P. June—Sept.

β Leaves larger. The largest lobes lobed or divided half way down to the mid-rib. Stalk taller, firmer, white, opaque. BOLT.

Bolt. 1. 1.

In White-scars near Ingleton, Yorkshire, and in the Peak of Derbyshire. BOLT.

The Fern Moth feeds upon the different species of Polypodium.

1297. ADIAN'TUM. Maidenhair.

FRUCTIFICATIONS in oval spots, under the ends of the leaves, which are bent back.

ESS. CHAR. *Fructifications in terminating spots, under the margin of the leaf folded back.*

true ADIAN'TUM *Capil'lus ven'eri*s. Leaves doubly compound; leaflets alternate. Wings wedge-shaped; lobed, on leaf-stalks.—

Bull. 247.—Bolt. 29.—Tourn. 317. 2.—Ger. 982. 2.—Tourn. 317. 2.—Cam. epit. 924, cop. in Park. 1049. 1.—Matth. 1201. —J. B. iii. 752.—Lob. adv. 361. 1, repr. in ic. i. 809. 2. Garf. 125. A.—Ger. 982. 1.—Fuchf. 82, cop. in Trag. 531.—Dod. 469. 2, repr. in Ger. em. 1143. 1.

About 5 or 6 inches high. Lobes fan-shaped, with 4 or 5 nicks at the end. BOLT. WITH.

Maidenhair.

Rocks and moist walls. Barry Island and Port Kirig, Glamorgan-shire.—Isle of Arran, near Galloway. P. May—Sept.

1298. TRICHO'MANES. Goldilocks.

EMFAL. turban-shaped, single, upright; rising from the very edge of the leaf.

Shaft bristle-shaped; terminating the Capsule.

ESS. CHAR. *Fructifications solitary, terminated by a bristle-shaped Shaft, and inserted into the very edge of the leaf.*

cup TRICHO'MANES *pyxidif'erum*. Leaves almost doubly winged. Wings alternate, crowded, lobed; strap-shaped.—

Bolt. 30.*—Ray 3. f. 4. at p. 128, a young plant.—Pet. pter. 13. 13.—Ray 3. 3, fully grown, but Mr. Bolton assures us much larger than any he has seen growing.

Root woolly and hairy. Stems winged, brownish black below, green above. Leaves thin, pellucid, shining, deep green. Fructifications none observable. DILL. in R. syn. 127. n. 14.—Leaves indistinctly

* Does not well express the appearance of my specimens. Mr. Woodward.

tinctly waved or scolloped on their edges. *Seed-vessels*, none discovered. Our plant probably only a luxuriant variety of *T. tunbrigense*, their figure, texture, and whole habit being the same, and differing only in size. In cavities excluded from the sun, I have found specimens partaking equally of *T. pyxidatum* and *tunbrigense*, which are figured in t. 2. f. 7. **BOLT.**—*Wings* varying in shape, all deeply lobed, very entire at the edge; little resembling *T. tunbrigense* in any thing but the thinness and transparency of its leaves. It has not been found in fructification, but many species of Mosses are found in abundance year after year, without any fructifications ever appearing. **Mr. Woodw.**—But in the fig. of *Pet.* referred to by Linnæus and Hudson, seed-vessels are represented. **St. With.**

On dripping rocks. At Belbank, half a mile from Bingley, at the head of a remarkable spring, *R. fyn.*—in a little dark cavern under a dripping rock, a little below the spring of Elm Cragg Well. **BOLT.**
P. Aug.

TRICHO'MANES *tunbrigense*. Leaves winged. *tunbridge*
Wings oblong; forked; running down the rib; toothed.

Fl. dan. 954.—**Bolt.** 31, * teeth scarcely obvious, and the fruit on naked fruit-stalks.—**Bolt.** 2. 7.—*Pluk.* 3. 5.—*H. ox.* xv. 7. 50.
—*Pluk.* 3. 6.

Globules consisting of seeds produced between 2 leafy valves. **LINN.**—Wings sometimes, not always, ferrated or scolloped. **BOLT.**—*Wings* elliptical, narrow; teeth sharp. **Mr. Woodw.**—*Leaves*, all producing fructifications when growing in an open exposure, but in chinks of shady rocks they become luxuriant, assuming the appearance of *T. pyxidiferum*, and never bear fructifications. Perhaps in the latter state, it is the plant supposed by the English botanists to be *T. pyxidiferum*. **Mr. Griffith.**—*Empalement* sitting, leaves 2, irregularly square, somewhat toothed. *Fructifications* similar to those of other Ferns, on a narrow spike-stalk. **St.**—*Empalement* supported on a short fruit-stalk. **With.**

Moist clefts of rocks and stony places. Near Tunbridge, amongst the pebbles at Cockbush, on the coast of Sussex. On Dartmore, Devonshire, and on the mountains of Westmoreland, Cumberland, Yorkshire, and Wales; and both in the Lowlands and Highlands of Scotland. [High mountain at the Head of Winandermere, Westmoreland. **Dr. Smith.**]
P. May—Oct.

β Larger. **BOLT.** p. 59, and xii.

Bolt. 2. 7.

Accords

* Teeth of the leaves not well expressed. **Mr. Woodward.**

Accords with α in figure, texture, colour, and habit. BOLT.—Specimens according exactly with Mr. Bolton's figure, from a root which produced other smaller leaves which bore fructifications. Mr. GRIFFITH.—*Leaf* of Mr. Griffith's specimen two inches and a half high, those of other specimens from Scotland exactly similar to it, and which bear fructifications quite as large. These circumstances conjoined with what is remarked in the notes on the *T. tunbrigense*, induce me to believe Linnæus's *pyxidiferum* and *tunbrigense* to be varieties of one and the same species. ST.

1300. PILULARIA, Pillwort.

Barren Flowers like powder, in a line under the leaf,
Fertile Flowers at the root.

CAPSULE globular; with 4 cells, containing many seeds.

ESS. CHAR. *Flowers*, the barren on the side of the leaf.
Fructification fertile, near the root, globular, with 4 cells,

rustleaved

PILULARIA *globulifera*.

Dill. 79, before the fruit quite ripe. — Fl. dan. 223, fruit ripe.—Bull. 375.—Bolt. 40.—Pet. 9. 8.—Vaill. 15. 6.*—Pluk. 48. 1.—H. ox. xv. 7. 49.

Capsule filled in the lower part with oval, somewhat angular white seeds, containing a yellow kernel; but towards the top with white conical substances of about the same size, composed of a membranaceous semi-transparent coat, containing a number of small globular grains. As Linnæus does not inform us that he examined with a microscope, what he conceived to be the barren flowers, and as from his placing the genus in this class, it should seem that he had not discovered any *Dust*, it is possible that the bodies just now described, may perform the office of impregnating the seeds within the capsule analogous to the structure of *Ficus*. Sr.

Peppergrafs. *Peppermoss*.

In grounds that have been overflowed, especially in a sandy soil. —Near Streatham Wells, Petersfield, and on Hounslow Heath. [Hainford and Stratton Heaths, Norfolk, Mr. CROWE.—St. Faiths Newton Bogs. Mr. PITCHFORD.]

P. June—Sept.

1301. ISOETES.

* Capsules too smooth. Mr. WOODWARD.

1301. ISO'ETES. Quillwort.

Barren Flowers solitary; within the bosom of the inner leaves.

EMPAL. *Scale* heart-shaped, pointed, sitting.

BLOSS. none.

CHIVE. *Thread* none, *Tip* roundish, with 1 cell.

Fertile Flowers solitary, within the bosom of the outer leaves of the same plant.

EMPAL. as above,

BLOSS. none.

POINT. *Seedbud* egg-shaped, and together with the *Shaft* and *Summit* concealed within the leaf.

S. VESS. *Capsule* somewhat egg-shaped, with 2 cells; concealed within the bosom of the leaf.

SEEDS numerous; globular.

ESS. CHAR. *Barren Flowers* within the bosom of the leaf.

Fertile Fruetification; *Capsule* of 2 cells, within the bosom of the leaf.—

ISO'ETES *lacustris*. Leaves awl-shaped, semi-cylindrical, bowed back.—

Bolt. 41.—Fl. dan. 191.—Dill. 80. 2.—Rayed. i. 2, at p. 1.

Root fibrous; fibers numerous, simple, slender, striking deep into the mud. Leaves quite limber, growing in thick tufts, 6 or 7 inches long, extremely like young rushes, convex on the back, flat, or slightly convex in front; the transverse diaphragms not very apparent in our specimens; at the base swelling into a kind of bulb, covered by a thin tender skin, which bursts and discovers it to be filled with numerous minute whitish seeds, which examined in the microscope appear spherical, roughish, somewhat transparent, and having 3 ribs meeting in a center. Mr. WOODW.—I have often found it in seed. Mr. GRIFFITH.

At the bottom of lakes. In Phynon-vrech, [ffynnon frêch] a small lake near the top of Snowdon. R. syn. Mr. GRIFFITH.] Near Llanberris, and Lyn Ogwan; near the top of Snowdon; Loch Tay, and other Highland lakes.—Llyn y Cwn near Snowdon. PENNANT. [Derwent Water, Cumberland. Mr. WOODWARD.]

P. May—Sept. [In seed in July. Mr. GRIFFITH.]

β HUDS.—Dill. 80. 1? I have often found a plant resembling this, but never could find it in seed. Mr. GRIFFITH.

Leaves not so stiff, from the base of which rises a stem throwing off shoots at different distances. RICHARDSON in R. syn.—What is meant by a stem? ST. [I have

[I have found leaves of it in Llyn Ogwen, but could not procure an entire plant. Mr. GRIFFITH.—At the bottom of Derwent Water. Mr. WOODW.]—In the lake, and by the side of a river in Wales.

γ HUDS.—Leaves very brittle, sometimes twice as long as those of α, narrower, and more pointed, transparent, with many minute pores. RICHARDSON in R. *syn.* Grows with α. *ib.* p. 307.

MUSC I. Mosses.

1302. LYCOPO'DIUM. Clubmoss.

* Ess. CHAR. Capsule of 2 valves, sitting. Veil none.

common LYCOPO'DIUM *clava'tum*. Leaves scattered, terminating in threads. Spikes cylindrical, on fruit-stalks, in pairs.—

Dill. 58. 1.—Fl. dan. 126.—H. ox. xv. 5. row 1. 2.—Gefn. i. *tabula pistā*, f. 2.—Blackw. 535.—Pluk. 47. 8.—Trag. 555, *cop. in Lon.* i. 179. 1, and *imit. in Ger.* 1374. 11, which repr. in Matth. a. C. B.—Lob. *obs.* 645. 1, repr. in *ic.* i. 2442, and Ger. *em.* 1562. 11.—Matth. 63.—Park, 1307. 4, *cop. in J. B.* iii. 766.

Stem creeping. Leaves open. LINN.—Shoots from one to several feet in length, firmly attached to the earth by woody fibres. Branches expanding, distant, trailing; the lower ones again sub-dividing into forks. Leaves closely tiled, strap-spear-shaped, pointed, and hooked, with long white hairs at the end. In the summer, from the ends of the branches, the fruit-stalks rise up, almost leafless, jointed, straight, rigid, from 2 to 4 inches high, dividing at the top into 2 (or 3) cylindrical, flowering spikes. Spikes closely tiled with scales or husks, egg-spear-shaped, pointed, hairy at the end, ragged at the edges. Each of these scales incloses a kidney-shaped yet low Capsule, exploding when ripe a yellow powder, which resembles sulphur, and burns with an explosion. WEIS.—Both barren and spike-bearing stems forked, and again sub-dividing into forks, as often as 5, 6, or 7 times. Branches from the principal shoot, alternate. DILL.

Club-

* Since the late discoveries relative to the fructification of Mosses, &c. the Generic descriptions of Linnæus appear so erroneous, that it was thought right to omit them.

Club-moss. Wolf's Claw.—Dry places on mountains, heaths, and woods. Hampstead and Hounslow Heaths, near Esher. [Monkshold Heath, near Norwich. Mr. PITCHFORD.—Derbyshire, and the North Mr. WOODWARD.—Cannock Heath, Staffordshire. WITH.]
P. July, Aug.

In Sweden they form it into mats or busses, which lie at their doors to clean shoes upon.—Restores ropy wine in a few days.

LYCOPO'DIUM *Selaginoides*. Leaves scattered, prickly fringed, spear-shaped. Spikes solitary, terminating, leafy.

Dill. 68, *Selaginoides*.—Fl. dan. 70.—Scheuch. it. i. 6. 1, at p. 43.

—Hall. enum. 3. 1. at p. 109, repr. in hist. 46. 1, at iii. p. 56.

—H. ox. xv. 5. row 2. 11, the lower part of the figure, the upper being *L. inundatum*, Dillenius having found a specimen, in Bobart's herbarium, in which the two species were mixed together, and from which most probably the figure was made.—Pluk. 47. 7.

Capsules, those at the base of the lower leaves when viewed sideways apparently in threes, but really in fours, one pair above and the other pair below; at length gaping, and disclosing as many large solid seeds; those at the base of the upper leaves yellower, of a looser texture, entirely simple, round, not containing seeds but dust. LINN.—Leaves toothed towards the base, nearly two lines long. Branches two inches long. Capsules in the bosom of the upper leaves. SCOP.

Mountainous heaths and pastures. In Scotland, the North of England, and Wales. [Mountains in Westmoreland. Mr. Woodw.]

P. June—Sept.

LYCOPO'DIUM *inundatum*. Leaves scattered, marshy entire. Spikes terminating, leafy.—

Fl. dan. 336.—Dill. 61. 7.—Vaill. 16. 11.—H. ox. xv. 5. row 2.

11, the middle and upper branches, the rest belonging to *L. Selaginoides*. See that species.

Stem creeping. Spikes solitary, sitting, smooth. LINN.—Branched; the length of a finger or more; cylindrical. Spikes sitting, upright. Leaves awl-shaped, pointed, smooth, on the creeping shoots pointing one way, two lines long, and one broad at the base. POLLICH.—Shoots ereeping, pointing one way, those bearing spikes an inch long, upright, cylindrical. Leaves strap-shaped, crowded, without terminating hairs. Spikes leafy, not different from the shoots except in being thicker. Capsules compressed, roundish, not kidney-shaped. WEBER.

Moist heaths and turfy bogs. Hounslow Heath, and near Esher. [Near Norwich, Ellingham Fen near Bungay, Suffolk. Mr. Woodw.]

P. June—Sept.

LYCO-

fir-leaved

LYCOPO'DIUM *Sela'go*. Leaves scattered; pointing 8 ways. Stem forked; upright. Branches all of the same height. Flowers scattered.—

Dill. 56. 1.—Fl. den. 104.—H. ox. xv. 5, row 2, 9.—Schauch. it. i. 6. 2.

Leaves obliquely disposed in 8 rows, which may be best observed by looking at them; holding the ends of the branches perpendicular to the eye. LINN.—Stems upright; branched, from 3 to 7 inches high, forked; branches again forked, closely covered with leaves. Leaves spear-shaped, sharp-pointed, stiff, smooth, shining, scolloped or serrated, and cartilaginous at the edge. Capsules in the bosom of the upper leaves, kidney-shaped; flattened, yellow, opening like an oyster, and pouring out a pale yellow powder. WEIS.—Root dividing into forks like the stem. DILL.

Mountainous heaths, in the clefts of rocks in Yorkshire, Lancashire, Westmoreland, Cumberland, the Highlands and Hebrides.—Near the top of Ingleborough, Yorkshire. CURT. *obs.* 132. [Mountains in the North. MR. WOODWARD.] P. April—Oct.

It purges, vomits, and destroys worms. A decoction of it is a cure for lice in swine and cattle. LINN.—Its properties seem to challenge further inquiry.

welfh

LYCOPO'DIUM *anno'tinum*. Leaves scattered, pointing 5 ways; somewhat serrated. Stem jointed at each year's shoot. Spikes terminating the last, smooth; upright.—

Dill. 63. 9.—H. ox. xv. 5. row 1. 3.—Fl. den. 127.—Pluk. 205. 5.

Branches contracted at the last year's shoots, as in the female of the *Polytrichum commune*. Leaves whorled, in fives, expanding; running down. LINN.—Stems trailing, very long. Leaves not ending in hairs, a little serrated, very rigid when dry. Flowering spikes sitting. Frustrification as in *L. clavatum*. WEIS.—Spikes hardly one inch long; scales egg-shaped. Leaves four lines long, and one and a half broad; toothed towards the ends.—In Plukenett's fig. the leaves are too small, and erroneously represented upright. DILL.

On the mountains of Caernarvonshire. R. *syn.* P. June—Sept. It is made into bafles, and affords a yellow dye.

mountain

LYCOPO'DIUM *alpi'num*. Leaves pointing 4 ways; tiled; pointed. Stems upright; cloven. Spikes sitting; cylindrical.—

Dill. 58. 2.—Fl. lapp. 11. 6.—Fl. dan. 79.—J. B. iii. 767. 1; —Ger. 948 (instead of 952,) repr. in Matth. a. C. B. 120. 2,

cop.

cop. in Ger. em. 1562. 12, and re-copied in Park. 1310. 1, are L. complanatum.

Stem creeping, from a span to a foot long. *Branches* alternate, at an inch distant from each other, upright, forked, of the length of a little finger. *Little Branches* bundled, from 20 to 30 together, exactly four-cornered, the angles blunt. *Leaves* thickish. *Fruit-stalks* terminating a branch here and there, scarcely two or three lines high, forked, scarcely distinguishable from the branches, covered with smaller leaves, bearing as many spikes. *Spikes* egg-shaped, nearly smooth. LINN.—All the branches divided, and repeatedly sub-divided into forks. DILL.

Mountainous heaths in Yorkshire, Cumberland, and the mountains of Wales, the Highlands and Hebrides. — Near the top of Ingleborough, Yorkshire. CURT. obs. 133.—[Near the Holme, about 5 miles from Burnley, Lancashire. Mr. WOODWARD.]

P. July—Oct.

1304. SPHAG'NUM. Bogmoss.

Ess. CHAR *Capsule* with a lid, mouth smooth. *Veil* none.

SPHAG'NUM *palustre*. Branches bent down- grey
wards.—

Hedw. Theor. 12. 42 to 45, and 13. 46, 47, hist. i. 1. 1, ib. ii. 3.

9.—Vall. 23. 3.—Dill. 32. 1.—Fl. dan. 474.—Pluk. 101. 1.

Scheuch. it. i. 5. 4, at p. 38.—Lob. ic. ii. 242. 2, repr. in Dod.

472. 1, Ger. em. 1559. 1, and cop. in Park. 1306. n. 1.

Capsules burst with a crackling noise. LINN.—Growing in tufts. *Shoots* 6 to 12 inches high. Pale green; white when dry. *Seeds* greenish. Readily known by its whitish colour, and its globular *Capsules*. NECK.—The greater part of the stem buried in the mud, the part above from 4 to 12 inches high, sometimes sub-dividing. *Branches* undivided, irregular, the lower more distant, the upper forming a sort of broad topped spike, but all of them hanging down. *Leaves* egg-spear-shaped, closely tiled. *Fruit-stalks* 2 or 3 lines long, terminating. *Capsule* globular. *Lid* convex, beaked. *Mouth* even.

WEIS.

Peat Bogs. [Near Bungay, Suffolk. Mr. STONE.] P. July, Aug.

β The whole habit more slender.

Dill. 32. 2.—Hedw. hist. i. 3. 3.—Mapp. at p. 200. C.

Peat Bogs.

P. July, Aug.

In

In variety (α) the leaflets are concave, oblong, blunt; in (β) flat, awl-shaped, sharp. Are they not distinct species, the first growing in running, the latter in stagnant water? WILLDENOW.

alpine SPHAG'NUM *alpi'num*. Somewhat branched; upright.—

Dill. 32. 3.

Schreber conjectures it to be a *Bryum*. LINN.—Of a beautiful green. *Capsules* egg-shaped. *Leaves* strap-spear-shaped, pointing 3 ways. NECK.—In a dense compact tuft, about a finger's length, sometimes dividing in the middle into 2 or 3 branches. *Leaves* a splendid intense green, long, narrow, pointed, straight, stiff. *Capsules* on short fruit-stalks, colour of pale wax, egg-shaped. DILL.

Bogs on Cader Idris, and Snowdon. DILL. [But I have never found it there in fructification. Mr. GRIFFITH.] Aug.—Oct.

tree SPHAG'NUM *arbo'reum*. Branched; creeping. Capsules on the sides of the branches, pointing one way.

Hedw. Stirp. 3. 15.—Dill. 32. 6.—Vaill. 27. 17.

Deep green. Branches sometimes sub-divided. *Leaves* short, numerous, triangular, concave. *Capsules* oblong, on very short fruit-stalks, on every part of the stem, pointing one way, nearly enclosed by an Empalement composed of narrow leaflets, ending in hairs, very numerous. *Lid* spit-pointed, brown. DILL.—An inch high, stiff, but not upright, more or less branched at the base. Branches short, expanding. HEDWIG.

1305. PHAS'CUM. Earthmoss.

ESS. CHAR. *Capsule* with a lid, the mouth fringed. Veil minute, deciduous.

Obs. *Phascum acaulon* and *subulatum* are furnished with a Veil, and therefore may properly be associated with the *Bryum*'s. LINN.

oval PHAS'CUM *acaulon*. Stemless. Capsule sitting. Leaves egg-shaped, pointed, approaching.—

Schreb. phasc. 1. 1 and 2.—Curt. iv. 46. 276.—Dill. 32. 11.—Fl.

dan. 249. 3, cop. in Happ. ii. Phasc. 1, a.—Neck. meth. 1. 1, at p.

273, a veil magnified.—Pet. i. 95. 14.—(Vaill. 27. 2, seems to be

P. muticum.—Dill. 32. 12, is *P. muticum*.—Fl. dan. 249. 1, is

Buxbaumia feliosa.—For Icon Oederi t. 249. f. 3 in Wigg. p. 80, and Reich. syst. pl. iv. p. 662, read f. 1.)

Has a *veil* and a *lid*. LINN.—*Shoots* crowded. *Veil* on one side the Capsule. NECK.

Heaths and ditch banks on sandy soil.

A. Jan.—May.

β Schreb. *phasc.* 1. 11 and 12.—Dill. 32. 12.—Vall. 27. 2.

Shoots 1 year old bearing bulbs. *Capsules* shining; globular; *Veils* wide at bottom, fugacious. NECK.—*Leaves* forming a kind of roses, the outer ones open, the inner ones bending inwards, inclosing a *Capsule*, egg-shaped, orange coloured or brown, very minute. *Lid* beaked. *Veil* slightly scored, covering one side of the capsule. WEIS.—Only a few lines in length, growing in patches. *Leaves*, upper ones the largest, approaching so as to form a sort of bulb; skinny, concave, soft, without a nerve, ending in a short hair, which is best seen in the dry plant. DILL.

Garden walks, hedges and ditch banks, winter and spring.

PHAS'CUM *curvicol'lum*. HEDW.—Stemless. *Caps* *crooked* fules on fruit-stalks; bowed downwards. *Leaves* spear-shaped, taper pointed, open. DICKS.

Dicks. 1. 3.—*Hedw. stirp.* i. 11.

Plant extremely minute, hardly visible to the naked eye, unless growing in clusters and bearing its swollen Capsules. *Fence*, leaves straight, strap-spear-shaped; the other leaves egg-spear-shaped. *Fruit-stalks* very much bowed. *Capsules* egg-shaped, brown and mottled when ripe. *Veil* very small. *Lid* with a short beak. Often mixed with *Bryum argenteum*. Ripens in May. HEDWIG.

In barren grassy places; near Croydon. DICKS.

PHAS'CUM *subula'tum*. Stemless. *Capsule* fitting. *awl-leaved* *Leaves* awl-bristle-shaped, open.—

Hedw. st. i. 35.—*Curt.* iv. 46. 275.—*Fl. dan.* 249. 2; *cop. in*

Happ. ii. *Phascum* 1. 6.—Dill. 32. 10.—Vall. 29. 4.—(*Fl. dan.*

249. 1, is *Buxbaumia foliosa*)

Capsules continuing all the summer, reddish and yellowish, in autumn ripening, turning brown, and opening. *R. syn.*—So minute as hardly to be visible if it did not grow in patches; from 2 to 3 lines high. *Capsules* in the terminating roses, fitting, the size of a poppy seed, yellow. *Lid* beaked. WEIS.—*Shoots* not branched. *Veil* covering the capsule, conical, scored; blunt, of short duration. NECK.—In a rich soil sometimes half an inch high, and with 2 or 3 branches towards the top. *Barren* flower in the bosom of the leaves. *Lid* none. HEDW.—Only 3 or 4 lines high, but growing in patches is readily found, and the Capsules not larger than a seed of tobacco, are very visible on account of the thinness of the leaves. DILL.

Heaths in a sandy soil; ditch banks. [Near Bungay, Suffolk.
Mr. STONE.] A. March—Aug.

alternate leaved PHAS'CUM *alternifolium*. Fertile stems short. Barren stems taller, upright. Leaves alternate awl-shaped. DICKS.

Dickf. i. 2.

Barren and fertile stems growing intermixed, and forming small green tufts. BARREN SHOOTS undivided, thread-shaped, half an inch and more high. Leaves very short, awl-shaped, alternate, rather hunched at the base, expanding at the ends. FERTILE SHOOTS undivided, 1-8th of an inch high. Leaves awl-bristle-shaped, as long again as the capsule. Capsule, one at the end of each shoot, single, sitting, buried in the leaves, inversely egg-shaped, pale yellow. DICKS.

Bogs. [Gamlingay Bogs, Cambridgeshire. Mr. GRIFFITH.]

April.

shining PHAS'CUM *nitidum*. Leaves awl-shaped, keeled, somewhat bundled. HEDW. *stirp.* i. 91.—With a stem. Capsules on fruit-stalks just rising above the leaves. DICKS. 2.

Hedw. *stirp.* i. 34.

Exceedingly small; about 1-8th of an inch high, upright, sometimes sending out one or two branches at the base. Leaves slender, bristle-shaped, surrounding the stems, and rising above the ends. Capsules egg-shaped, taper-pointed at the end, on short fruit-stalks, sometimes from the sides of the stem and bosom of the leaves, but mostly terminating, solitary, or in pairs, naked or distinct, though the leaves extend beyond them, when ripe brownish. DICKS.

P. axillare. Dickf. i. 2; and ii. 27.

Bogs on heaths.

Sept.

hairy PHAS'CUM *piliferum*. With a stem. Leaves oblong, with hairs at the ends, upright. SCHREB. *phasc.* 3.—Capsules on fruit-stalks. DICKS. ii. 1.

Schreb. *phasc.* i. 6 to 10.

Leaves curling up in drying. DICKS.

In poor grass land near London. DICKS.

creeping PHAS'CUM *repens*. Stem creeping. Capsules on the sides of the branches, sitting.—

Dill. 85. 16.

Stems

Stems creeping, adhering to the bark of trees. *Branches* short, cylindrical, mostly in pairs. *Capsules* extremely small; in the bosom of the leaves. DILL.

Trunks of trees in Yorkshire. DILL.

P. May.

1306. FONTINA'LIS. Watermoss.

Ess. CHAR. *Capsule with a lid. Veil sitting, inclosed by the Empalement.*

Obs. Differing from HYPNUM in nothing but the Capsule not being supported on a fruit-stalk. WEIS.

FONTINA'LIS *antipyretica*. Leaves between *greater* folded and keeled, in 3 rows; pointed. Capsules on the sides of the branches.—

Dill. 33. 1.—Vaill. 33. 5.—H. ox. xv. 6. 32.—Buxb. iii. 69. 2.

—Mich. 59. 9.—Hedw. hist. i. 5. 27; ii. 9. 53; 54, 55, and 1. 5.

Shoots a foot long or more, branched. The primary shoot sends out lateral and terminating ones, and these branch out again. NECK.—Floating in the water. *Leaves* two or three lines long, and half as broad, very entire at the edge. *Capsules* lateral, in the bosom of the leaves, on very short fruit-stalks, inclosed in a leafy scaly fence. *Veil* conical. *Lid* conical, blunt, starting with a spring from the ripe capsule. *Fringe* surrounding a central point. *Seeds* green.

Upon rocks and roots of trees, in brooks, rivulets, flow streams and ponds. P. June—Sept.

The Scandinavians line the inside of their chimnies with this to defend them against the fire, for contrary to the nature of all other Moss, this is hardly capable of burning.

FONTINA'LIS *mi'nor*. Leaves egg-shaped; *con-* *lesser* cave; pointing three ways; pointed; always in pairs. Capsules terminating.—

Dill. 33. 2.

Leaves between folded and keeled, on the thicker branches in pairs. LINN.—*Shoots* 4 inches long, in rapid streams half a yard or more, very much branched. *Branches* 3-sided, ending in a sharp point. *Capsules* egg-shaped, on short fruit-stalks. WEBER.—*Shoots* shorter, more branched, and leaves smaller, thicker and blunter than in the *F. antipyretica*. DILL.

Banks of the Thames on the walls of Lambeth palace, and on the banks of the Isis at Oxford. DILL.

P. Aug.—Oct.

scaly FONTINALIS *squamo'sa*. Leaves tiled; awl-spear-shaped. Capsules on the sides of the branches.—

Hedwig. *flor.* 3. 12.—Dill. 33. 3.—J. B. iii. 778. 3.

Leaves sometimes spear-shaped, pointed. Very nearly allied to *F. antipyretica*. HUDS.—Capsules egg-shaped; sitting; NECK.—Long and slender; fertile stem generally forked; barren stem more branched; 4 to 6 inches long. Leaves long, spear-shaped, partly embracing the stem, so slender as to appear awl-shaped to the naked eye. HEDWIG.—Shoot 4 to 12 inches long, branched, floating in the direction of the stream, slender, black, bare near the root. Leaves dark green, smooth, shining, black when dry. Branches 3-sided. Capsules on the side of the branches sitting, egg-shaped, immersed in a leafy empalement. DILL.

Mountainous rivulets in Wales, North of England, Highlands, and Western Isles. P. June—Oct.

feathered FONTINALIS *pinna'ta*. Leaves pointing 2 ways; expanding. Capsules on the sides of the branches.—

Hedwig. *flor.* 3. 19.—Vaill. 27. 4.—Hall. *enum.* 3. 2, at p. 109, repr. in *hist.* 46. 2, at iii. p. 56.—Dill. 32. 9.

Leaves with wavy wrinkles. Capsules sitting; nearly cylindrical. NECK.—Shoots creeping and forming compact patches. Branches one inch long, or more. Leaves closely compacted, about a line in length, and one fourth of a line in breadth. Capsules solitary, or in pairs, chiefly on one side the branches, one line long and half as broad, smooth, green, changing to reddish. Mouth without a ring, closed with a white fringe. Lid pointed. Veil but half the size of the capsule; smooth. Empal. composed of spear-shaped, pointed, shining leaflets, taller than the capsule and closely embracing it. POLLICH.—Stem thread-shaped, rigid; branches in opposite directions, decumbent with age. Leaves without veins. HEDWIG.

Trunks of trees in the woods about Troutbeck and Ambleside, Westmoreland.

P. Aug.—Oct.

hair-like FONTINALIS *capilla'cea*. Leaves strap-bristle-shaped, LINN. *fl. suec.*—pointing one way, those of the receptacle very long, convoluted, awl-shaped. DICKS. ii. 1.

Dill. 33. 5.

Leaves crowded, channelled, in no regular order. Fruit-stalks furrowed and twisted. Capsules oblong. SCOP.—Shoots 5 to 7 inches long. Branches sometimes divided. Empal. long, from the bosom of the leaves, chiefly where branches arise; out of these come forth, Capsules green, small, egg-shaped. DILL.

Mountain rivulets in Scotland.

FONTINA' LIS *alpina*. Leaves mostly pointing *alpine* one way, elliptical bluntish, those of the empal. spear-shaped, pointed. Dicks. ii. 2.

Dicks. ii. 4. 1.

Leaves short, twisted when dry, somewhat curled. Capsule, together with the empal. thrice as large as the leaves. Dicks.

On rocks and stones in the alpine rivulets of Scotland.

1307. B U X B A U ' M I A.

Barren Flower on a fruit-stalk.

EMPAL. Veil conical, falling off.

CAPS. oval, hunched on one side, membranaceous on the other; mouth fringed and plaited, covered with a lid. Lid conical, perforated at the base, and within it hangs suspended by a fine thread, the true tip, which is lopped at the base, and contains dust.

RECEPT. Scaly bulb, none.

ESS. CHAR. Capsule with a lid, membranaceous on one side.

Veil falling off. Within the lid a sac containing dust.

B U X B A U ' M I A *folio'sa*. Stemless. Capsule leafy nearly sitting, surrounded with leaves.—

Hedwig. theor. 10. 23 to 31; 11. 32 to 34; *hist.* 9. 51.—*Schmidel. buxb.* 2, or rather the lower part of the plate, consisting of the figures distinguished by roman numerals.—*Hall. enum.* 3. 3, at p. 109; *repr. in hist.* 46. 3, at iii. p. 56.—*Dill.* 32. 13.—*Fl. dan.* 249. 1, ill cop. in *Happ.* ii.—*Phascum* 1, the central plant.—*Hall. it. helv.* 2. 3, in *opusc.* at p. 308.—(*Fl. dan.* 249. 3, is *P. acaulon.*)

Leaves of the empal. awned. WILLDENOW.—Leaves, the lowermost open, oblong, the uppermost upright, spear-shaped, taper-pointed. Capsule sitting. HUDS. 466.

Phascum montanum. HUDS.

On earth upon rocks near Llanberris in Caernarvonshire, DILL. 253.—and on Hart-fell mountain near Moffat. SHEFFIELD in *Huds.*—In the Highlands and Lowlands. LIGHTF. 693.

A. Sept. Oct. DILL.—May—Aug. HUDS.

1308. SPLACH'NUM. Bottlemoss.

Ess. CHAR. *Capsule sitting, on the summit of a large coloured scaly bulb. Veil deciduous. Stars on a distinct plant.*

purple SPLACH'NUM *ampulla'ceum*. Receptacle bottle-shaped, inversely conical.—

1. Fertile plant. *Hedwig. stirp. ii. 14; hist. 7. 33.—Fl. dan. 822. —Dill. 44. 3.—Vaill. 26. 4.—H. ox. xv. 6. 10.—Buxb. ii. 1. 1, is this plant, though referred by Linnæus to S. vasculosum, as Muller and Hedwig both remark.—Hedwig doubts of the references to Dill. Vaill. and H. ox.*

May it not be a mere variety of *Mnium fontanum*? *Leaves pointed. Receptacle empty, transparent, an extension of the fruit-stalk. LINN.—Stem short. Fruit-stalk an inch or more in length. Veil short, triangular, shining. HALLER.—Stem single or forked, from one to two inches high, upright, but feeble, and supported by other collateral stems. Leaves spear-shaped, acutely pointed. Chives and Pointals on the end of the same shoot. Veil bell-shaped. Capsule slender, cylindrical, upright. Receptacle large, shaped like an inverted decanter. Lid convex. Fringe single, of 8 pair of teeth. HEDWIG.*

2. Barren Plant? *Fl. dan. 822, the lowermost figure on the left hand.*

Turfy bogs, but only where the dung of animals has failed. LINN.—Bogs and marshes, and often upon cow-dung. LIGHTF.—Bogs about Hitchin Ferry near Southampton, and by W. Wickham, and Addington near Croydon. R. syn.—Flowers in May, ripens its capsules in July. P. HEDWIG.

[Geldestone Fen near Bungay, Suffolk. Mr. STONE.]

A. March—May.

acorn-shaped SPLACH'NUM *vasulo'sum*. Receptacle bottle-shaped, somewhat globular.—

Hedw. stirp. ii. 15.

Like *S. ampullaceum*, but in that species the receptacle is more top-shaped and yellower; in this nearly globular and blood-coloured. *Leaves egg-shaped, pointed. Very nearly allied to Mnium annotinum. LINN.—Barren stems 2 inches, fertile ones one inch long, upright, unbranched. Leaves spatula-shaped, bluntish, alternate, distant. Fruit-stalk one and a half inch, upright, red. Receptacle large, pear-shaped, blood red. Capsule cylindrical, upright, brownish yellow. Fringe simple, composed of 8 teeth, in pairs. HEDWIG.*

Phascum

Phascum pedunculatum. HUDS. ed. i. adopted by Linnæus.

Upon bogs and cow-dung, and on the points of rocks on the tops of the Highland mountains, as Ben Lomond, and in the Isle of Sky, and elsewhere. LIGHTF. 697.—On Scarbrae Moss in the parish of Kirkmichael. Dr. BURGESS.—On mountainous moist heaths in Yorkshire, Westmoreland, and Wales.

A. June—Oct. HUDS.—P. HEDWIG.

SPLACH'NUM *urcola'tum*. HEDWIG. *stirp.* ii. 39, *pitcher shaped* misprinted 37.—With a stem. Leaves tiled, egg-shaped, concave, with bristles at the end. Receptacle inversely conical, thickening. DICKS.

Hedwig. stirp. ii. 13.

About one inch high, simple or forked, one fruit-stalk on each branch. Leaves spoon-shaped. Fruit-stalk upright, near an inch high. Receptacle an inverted cone. Capsule egg-shaped, cylindrical when old. Lid conical, blunt. Fringe of 8 teeth, in pairs, orange-coloured. HEDWIG.

Highlands of Scotland. On Ben High.

P.

SPLACH'NUM *ten'ue*. With a stem. Leaves *slender* egg-oblong, pointed. Receptacle inversely conical, tapering. DICKS. ii. 2.

Dicks. 4. 2.

Approaches very near to *S. urceolatum*, from which it differs in the habit of its leaves, its slender and almost cylindrical receptacle. DICKS.

On Ben Lawers in the Highlands.

SPLACH'NUM *sphæ'ricum*. Receptacle globular. *spherical* LINN. THE SON. *meth. musc.* 33.

Hedwig. stirp. ii. 16.

Fruit-stalk very long, greenish and reddish brown. Capsule very small. Lid blunt. Receptacle green. LINN. THE SON.—Stem upright, hardly one inch high, seldom branched. Leaves distant, alternate, spoon-shaped but tapering to a point. Fruit-stalk very long, (3 or 4 inches,) upright, terminating, tawney at bottom, green above. Receptacle large, globular, green. Capsule cylindrical, blunt. Lid blunt. Fringe 8 teeth in pairs, yellowish. HEDWIG.

Mountains near Stirling. Dr. BUCHANAN in *Dicks.* p. 3.

SPLACH'NUM *breweria'nium*. Leaves spear-shaped, very entire. Barren and fertile flowers on distinct branches. HEDW. *stirp.* ii. 106. *Brewer's*

Hedw.

Hedw. stirp. ii. 38.—*Dill.* 44. 5.

Original stem hardly more than an inch long, but branching out shoot upon shoot to several inches. *Fruit-stalk* about one inch long, upright. *Receptacle* egg-shaped, lopped. *Capsule* cylindrical. *Lid* short. *Ring* none. *Mouth* fringed with 16 sharp red teeth. *Veil* small. *HEDWIG.*—Crowded together. Stems slender, nearly covered to the top with dead leaves. Upper leaves narrow, pellucid, dilute green, sides bent in. *Fruit-stalk* terminating, reddish. *Capsule* dark purple red. *DILL.*

Moist heaths near Llyn Dwythwch, always on rotten cow dung. *BREWER* in *Dill.* 345. Oct.—Jan. P.

narrow

SPLACH'NUM *angusta'tum*. With a stem. Leaves with hairs. *Fruit-stalk* very short. *LINN. THE SON.*

Hedw. stirp. ii. 12.

Upright, not branched, near one inch high. *Leaves* larger towards the top of the plant, sometimes a little toothed towards the end. *Fruit-stalk* hardly rising above the leafy Empalment. *Capsule* cone-shaped, but lopped, leaning a little. *Mouth* fringed with 8 teeth, in pairs. *Veil* oblique. *HEDWIG.*

In moist alpine situations in Scotland. *DICKS.* ii. 3.

P.

slender

SPLACH'NUM *mnioi'des*. Almost stemless. *Receptacle* oblong. *LINN. THE SON, meth. musc.* 6.

Hedw. st. ii. 11.—*Fl. dan.* 192.

Fertile shoots upright, undivided. *Barren* shoot generally branched. *Leaves* very entire, ending in a long point. *Fruit-stalk* upright, terminating, about half an inch long. *Capsule* upright, egg-shaped. *Receptacle* an inverted cone. *Lid* flat, bluntly pointed. *Fringe* of eight teeth, broad, united. *Veil* slender. *HEDWIG.*

Phascum pedunculatum. *Hudf. ed. I.* *Linn. syst. veg.* according to *Hedw.* but not so according to *Dickf.* I. 2.

Mountainous places. *DICKS.* I. 2.

P.

egg-shaped

SPLACH'NUM *ova'tum*. Stemless. Leaves spear-egg-shaped, pointed. *Receptacle* inversely egg-shaped.—

Dickf. ii. 2.—*Dill.* 44. 4.—*Ray* 3. 2, at p. 128.

Leaves broad, shining. *Fruit-stalks* golden yellow. *DILL.*—A different plant from the *Splachnum vasculosum*. *Linn.* to which *Hudf.* had improperly referred. *DICKS.* I. 2.

Rotten spongy ground, as in the pastures called Emott Moor, Lancashire. Also in Montgomeryshire. *DILL.*—On Ben Nevis. *DICKS.*

1309. POLY'TRICHUM. Hairmoss.

Ess. CHAR. *Capsule with a lid, sitting on a very small excrescence. Veil woolly. Stars on a distinct plant.*

Oss. Mr. Curtis has detected an inner membranaceous veil within the other; but smaller. *Fl. Lond.*

POLY'TRICHUM *commune*. Stem simple. common
Capsule a long solid square.—

Hedw. hist. i. 9. 62, 63, 64; ii. 7. 37.—*Dill.* 54. 1.—*Happ.* i. Polytrich. 1.—*Mich.* 59. 1. I, E, M, O, P, Q, R.—*Blackw.* 375.—*Vaill.* 23. 8.—*Ger.* 1371. 3.—*Garf.* 129.—*Fuchf.* 629. 1, cop. in *Trag.* 528. 1, *J. B.* iii. 760. 1, *Lon.* i. 222. 3, and *Dod.* 475. 2, which repr. in *Ger. em.* 1559, the right hand fig. of the 3 lowermost, and imit. in *Barr.* 251. 3.—*Trag.* 946, the tallest of the figures, rising from a bed of *Hypnum sericeum*.—*Park* 1052, the right hand fig. of the two uppermost.—*Lob. obs.* 645. 2, repr. in ic. ii. 245, and *Ger. em.* 1559. 2, barren plants.—*Ger.* 1370. 2, cop. in *Park.* 1307. 3, barren plants.

Stems several inches high, seldom branched. Leaves near half an inch long, slender, pointed, turning back, finely serrated. Fruit-stalks terminating, solitary, two to four inches long, surrounded by a fence at the base. Capsule 4-sided; mouth fringed. Veil very hairy, hanging down below the Capsule, ragged. WEIS.—From 4 to 12 inches high, stiff, straight. Fruit-stalk golden red. Veil tawney. DILL.

Great golden Maidenhair, or Goldilocks.

Woods and moors in wet boggy places. P. May, June.

When the Laplanders sleep all night in the woods, they make themselves beds of this moss; and the bears collect it for the same purpose. Squirrels and birds use it in making their nests.

♂ LINN. Leaves shorter and less flexible. DILL.

Dill. 54. 2.—*Vaill.* 23. 6.—*Fl. dan.* 295.—*H. ox.* xv. 7. 6 and 8.

—*Lob. ic.* ii. 243. 1, repr. in *Ger. em.* 1563. 14, and cop. in *Park.* 1308. 9.

Shoots much shorter than (*a*) and mostly branched. WEIS.—Veil double, the outer one hairy, the inner one much smaller, white, smooth, membranaceous. LEERS.—Leaves sharp-pointed, very entire. Fruit-stalks two inches long. POLLICH.—Whole plant smaller than the preceding, except the Veil, which is larger and more pyramidal. Stem seldom more than one inch high, seldom branched. DILL.

CRYPTOGAMIA.

On hills, dry or wet.

P. May, June,

7 LINN.—Leaves terminating in hairs.

Happ. i. Polytr. 2.—Dill. 54. 3.—Vaill. 23. 7.—Buxb. i. 62. 3,
a barren plant.

Stems not more than half an inch long, simple, leafless below. Leaves entire at the edges, ending in grey hairs. Fruit-stalk terminating, about one inch long. WEIS.—Fruit-stalks half inch an high, or a little more. Capsule with its veil, two lines long, and one broad. POLLICH.—Leaves bent inwards a little, not serrated, terminating suddenly in a long whitish hair. Fruit-stalks and their sheathing empalement purple. DILL.

Dry woods and sandy barren heaths. Winter.

dwarf POLYTRICHUM *subrotundum*. Stem simple, Capsule roundish. HUDS.

Mnium Polytrichoides. LINN.

α Hedw. stirp. I. 13.—Curt. ii. 17.—Dill. 55. 6.—H. ox. xv. 7, row 2. 7.—Fet. mus. f. 22.—Vaill. 26. 15, veil wanting.

Veil open, larger than the capsule. LINN.—Leaves obscurely serrated. Capsules roundish, nodding. HEDWIG.—Shoots stemless. Leaves with a membranaceous appendage at the base. NECK.—Leaves not serrated. Fringe, rays 32.

Polytrichum polytrichoides. HUDS. 470. Pol. nanum. HEDWIG.

Heaths. Muddy soil. [Spink's Grove in a dry ditch. Mr. STONE. [Commons about Kinver in large patches. WITH.]

P. May.

β Leaves evidently serrated at the ends. Capsule cylindrical, leaning. HEDWIG.

Hedw. stirp. i. 14.—Dill. 55. 7.—Buxb. i. 63. 1.—Vaill. 29. 11.

Stem near half an inch high, seldom branched. Fruit-stalks growing to the length of an inch, fixed rather below the top of the stem. Capsule cylindrical, upright, but leaning as it becomes older. Veil larger than the capsule, irregular, very hairy. Barren shoots terminating in roses, hairy in the center. WEIS.—Shoots prolific when old. Leaves serrated. Capsule whitish when ripe. Fringe, rays 32. Receptacle none. I suspect it to be merely a young variety of Polytrichum urnigerum. LEERS.—Stem short, scarcely rising from the ground. Leaves thickish, short, stiff. Fruit-stalks reddish. Veil woolly, open at bottom. Capsules sea green, short, turgid. DILL.

Polytrichum nanum. HUDS. 470. Pol. aloides. HEDWIG.

Heaths. Muddy soil. [Near Spink's Grove. Brome, near Bungay, Suffolk. Mr. STONE.—Edghaston Plantations. WITH.]

P. March—July.

POLY'TRICHUM *hercynicum*. Capsule upright, *hercynian* pitcher-shaped. Veil with scattered hairs. HEDW. *stirp.*
1. 40. DICKS.

Hedw. stirp. i. 15.

Stem upright, undivided, an inch long. *Leaves* strap-shaped, keeled, very entire, bowed in, alternate, nearly upright, pointed, naked. *Fruit-stalk* terminating, solitary, upright, an inch long. *Veil* conical, pointed, pale. *Capsule* upright, oblong, or cylindrical, the mouth between toothed and fringed. *Lid* conical, somewhat pointed. HUDS.—*Mouth* fringed with 32 short teeth, connected at the base. HEDWIG.

Bryum incurvum. HUDS.

Pastures and rocks about Llanberis, Mr. DAVIES.—In the Highland mountains. DICKS. P. June—Oct.

POLY'TRICHUM *alpinum*. Stem very much *alpine* branched. Fruit-stalks terminating.—

Dill. 55. 4.—Hall. enum. 3. 6, at p. 109, repr. in hist. 46. 6, at iii. p. 56.—Fl. Dan. 296.

Shoots from one half to two inches long; very much branched. *Leaves* slightly toothed. *Capsules* egg-shaped, leaning when ripe. *Lid* conical, beaked. *Mouth* with a ring; fringe fine, short, upright, white. WEBER.—*Capsules* unequally distended, green, blackish when old. *Lid* saffron-colour, its point white. DILL.

Mountainous heaths in the North of England, and mountains of Wales and Scotland. P. June—Aug.

♂ HUDS.—*P. urnigerum*, which see.

POLY'TRICHUM *urnigerum*. Stem very much *urn-headed* branched. Fruit-stalks from the bosom of the leaves.—

Dill. 55. 5.—Vaill. 28. 13.—Fl. dan. 297.

Capsules when ripe nodding. LINN.—When young the shoots unbranched, and stellated at the ends, with terminating fruitstalks when older; 2 or 3 inches high, with lateral branches, somewhat forked, rising to nearly an equal height. *Fruit-stalks* lateral, two or three inches high. *Empal.* red. *Capsule* cylindrical egg-shaped, tawney, upright, leaning as it ripens. *Lid* yellow, beak white. *Mouth* with a ring, and covered by a white membrane. *Fringe*, rays 32. *Receptacle* none. *Barren shoots* unbranched, 2 inches high, stellated at the ends. LEERS.—*Leaves* tooth-ferrated. *Capsules* cylindrical. WEBER.

At the foot of Cader Idris. DILL.—Highland mountains and Pentland Hills. LIGHTF. P. June—Aug.

1310. MNI'UM. Marshmoss.

Ess. CHAR. Capsule with a lid. Veil smooth, Barren Flowers in a small head, naked, powdery, at a distance from the fertile Flowers.

Osmund MNI'UM *osmunda'ceum*. Leaf simple, upright, with winged clefts, bearing fruit at the end. Wings in two rows, spear-shaped, very entire. DICKS. I. 3.

Hedw. stirp. i. 29.—Dickf. 1. 4.

Stems, or rather leaves, naked towards the base, half an inch long, and of two kinds, barren and fertile, but both naked at the base. Barren Stems with winged clefts, wings ribless, united at the base as in *Osmunda Spicant*. Fertile Stems, some starlike, some bearing capsules, very slender and bright green. Leaves distinct, egg-spear-shaped, pointing from 2 opposite lines. Fruit-stalks very slender, green, 1-8th of an inch long, from the end of the stem, out of an *empal.* resembling that of the barren flower. Capsule upright, very small, roundish, green, and after the falling off of the lid lopped. Veil, none observed. Lid very blunt, reddish. Fringe naked. DICKS. —Veil falling off, entire. HEDWIG.

Hollows in ditch banks under old hedges, in a rich soil on the road from Zele to S. Tawton, 4 miles from Okehampton, Devonshire. Mr. NEWBERRY in *Dickf.* March, April—June. B.

pellucid MNI'UM *pellu'cidum*. Stem simple. Leaves egg-shaped.—

Schmid. 3.—Fl. dan. 300, a single barren plant.—Hedw. hist. ii. 7. 32, a capsule.—Dill. 31. 2.—Hall. enum. 4. 8, at p. 118; repr. in hist. 45. 8, at iii. p. 41, a fertile plant.—Vaill. 24. 7, a fertile plant, leaves too much awl-shaped.

Barren plant, stalk coloured, cylindrical. Leaves shining, expanding. Fertile plant bearing capsules; leaves more slender. NECK.—Shoots an inch long, seldom branched. Leaves in 4 rows; mid-rib purple, ending in a point. Fruit-stalks terminating, an inch long, pellucid, whitish. Capsules cylindrical, yellowish. Veil very long. WEIS.

Woods. Moist shady places, and decayed roots of trees.

A. Jan.—July.

β HUBS.—Leaves exceedingly narrow, and pellucid.—R. *syn.* p. 78. n. 5.

Dill. 31. 2. E. F.

Heaths near Woolwich.

Mar. R. *syn.*

MNI'UM

MNI'UM androg'ynum. Stem branched. Barren and upright fertile flowers on the same plant.—

Fl. dan. 299, *cop. in Happ.* ii. *Mniium* 5.—*Hedw. hist.* i. 6. 33 to 36; *theor.* 12. 48, 49, 50.—*Dill.* 31. 1.—*Vaill.* 29. 6.—*Mich.* 59. 8. *H, K, c.*—*Neck. meth.* 1. 4, a head of barren flowers.—*H. ox.* xv. 7. row 2. 20.

Grows in dense patches; better than half an inch high. *Empal.* none. *Fruitstalks* terminating. *POLLICH.*—Very minute. *Leaflets* short, upright. *Capsule* leaning. *REYB.*—Oblong. *SCHOLL.*—Barren flowers terminating, globular, on fruit-stalks only half the length of those bearing capsules. *WITH.*—From one half to near 2 inches high, generally branched, nearly upright. *Leaves* not crowded, short, very narrow, pale green, pointed. *DILL.*

Woods, heaths, and walls, and roots of trees in moist sandy woods, dry shady banks by the sides of heaths. A. March, April.

MNI'UM fonta'num. Stem undivided; crooked at fountain the joints.

Dill. 44. 2.—*Vail.* 24. 10.—*Fl. dan.* 298, *cop. with additions in Happ.* iii. 7.—*H. ox.* xv. 6. row 3. 8.—*Mich.* 59. 4.—*Pluk.* 47. 2.

Bryum fontanum. *Huds.*

The old shoots covered with brown knap, and buried 3 inches deep. From these proceed slender, cylindrical shoots, some of which end in stars. *Fruit-stalks* 2 inches long; proceeding from the shoots of the preceding year. *NECK.*—Readily known by its stiff habit. *Shoots* 2 to 4 inches long. *Fruit-stalks* reddish. *WEIS.*—*Capsules* egg-shaped; leaning. *WITH.*—*Leaves* serrated, open, in the young shoots mostly pointing one way. In this species and also in the *Mniium palustre*, the fertile and barren shoots adhere so closely at bottom as to appear but one plant. *LEERS.*

[Low wet meadows, turf bogs, and springs, Earsham. Near Bungay, Suffolk. *MR. STONE.*] P. May—August.

MNI'UM palus'tre. Stem forked. Leaves awl- common shaped.

Dill. 31. 3.—*Vaill.* 24. 1.—*H. ox.* xv. 6. row 3. 9.

Stems upright. *Fruit-stalks* yellow, *REYB.*—Often 2 inches long, *RELH.*—from the forks of the stem. *NECK.*—Crowded. *Stems* upright, 2 to 5 inches high; mostly 2, sometimes with 3 divisions. *Leaves* slender, soft, pellucid, keeled, yellow green, yellow when dry. *DILL.*—*Stems* 2 or 3 inches high, branching towards the top into 2, 3, or 4 shoots. *Leaves* lower ones downy. *Summit-leaves* flat, large, forming stars, in which are the barren flowers. *Fruit-stalks* from

CRYPTOGAMIA.

from the tops of the last year's shoots, which now likewise support new shoots. *Capsules* leaning. WITH.

Turf bogs and wet heaths, marshes and moors. [Near Bungay, Suffolk. Mr. STONE.] P. June, July.

β Stem branched; upright. Fertile fruit-stalks from the bosom of the leaves. HUDS.

Dill. 31. 4.

Stem sometimes simple. DILL. 236.—Fertile Flowers not discovered. DILL. in R. syn. 78. n. 3.—Smaller than the preceding. Fruit-stalks from the bosom of the leaves, numerous, not terminating in capsules, but in small globular heads containing dust. Seems to be the chive-bearing or barren plant. WITH.

M. ramosum. Hudf. ed. i. 403.

yellow MNIMUM *hygrometricum*. Without a stem. Capsule nodding. Veil 4-edged, bent back.—

Dill. 52. 75.—Hedw. hist. i. 5. 31 to 26; ii. 10. 58 to 61, parts of fructification; 3. 11; 5. 25, 26; 6. 27; seedling plants.—Vail: 26. 16.—H. ox. xv. 7. 17.—Happ. i. Mnum 2.—Fuchf. 629. 2, cop. in Trag. 528. 2, J. B. iii. 760. 2, Lon. i. 222. 4, and Dod. 475. 1, which repr. in Ger. em. 1559. 4, the middlemost of the 3 lower figures; and cop. in Park. 1052, the left hand of the 2 upper figures.—Fl. dan. 648.—Ger. 1371. 4.

Capsule turban-shaped. Leaves egg-shaped, approaching. HUDS.—Forming tufts. Empal. bulbose. Fruit-stalks bent by the weight of the capsules. NECK.—Forming extensive patches. Stem one or two inches high, but mostly buried in the earth. Fruit-stalk a full inch long, purple below, paler above. Capsule pear-shaped, gold-coloured. Veil bent aside. Ring scarlet. Seed yellow. WEIS.—Veil 4-cornered. Leaves hairy at the end. Scop.—This Moss may be found in December, very small, close to the ground, the leaves very fine, from the middle of which projects the young fruit-stalk like the point of a pin. In January the 4-sided veil appears, of a straw-colour; in February and March the capsules are formed, which ripen in April and May. Leaves tender, pellucid, without veins. Roots black; hair-like. DILL.

Bryum hygrometricum. HUDS.

Common in woods, heaths, garden walks, walls, old trees, decayed wood, and where coals or cinders have been laid.

A. March—June.

If the fruit-stalk is moistened at the base with a little water or steam, the head makes 3 or 4 revolutions; if the head is moistened it turns back again. LINN.

MINI'UM *purpureum*. Stem forked. Capsules *purple* upright. Fruit-stalks from the forks of the stem. Leaves keeled.—

Dill. 49. 51.—Hedwig. *hist.* ii. 4. 17, a lid.—H. ox. xv. 6. row 4. †, some of the fruit-stalks terminate the branches.

Grows in very dense patches. Stem upright, mostly forked, and these shoots sometimes dividing again. Leaves spear-awl-shaped, in some shoots forming terminating stars. Fruit-stalks an inch high, at first upright, afterwards a little leaning. Lid conical, pointed, scarlet. Veil upright afterwards oblique. WEIS.

Bryum purpureum. HUDSON and LIGHTFOOT.

Walls, heaths, rocks, and gravelly banks and pastures. April. ♀ HUDS.—Leaves few and narrow.

Dill. 48. 49.

At first slender, not branched, fruit-stalks terminating; when older becoming branched, and fruit-stalks from the forks of the branches; reddish, short, slender. DILL.

Loose sandy soil; gravelly pastures.

March.

♂ HUDS.—Leaves less rigid; spear-shaped.

Dill. 49. 52.

Leaves ending in hair-like points. Capsules finely pointed. DILL.

On Emott Moor on the borders of Lancash. and Shobdon Marsh, Herefordshire. June.

MINI'UM *cirrhatum*. Leaves rolling back in starry drying.—

Dill. 48. 42.—Vaill. 24. 8.—Fl. dan. 538. 4.—(H. ox. xv. 7. 19, is *Bryum simplex*.)

Shoots branched, the young ones with stars at the end, the older with fruit-stalks at the forks. Leaves strap-shaped. NECK.—Capsules upright, egg-shaped. *Bryum cirrhatum*. HUDS.—Grows in large dense patches. In many respects resembling the *Bryum convolutum*, but it is more branched, the branches more expanded, the leaves longer, not pressed to when dry, but rolled back. Fruit-stalks from one half to one inch, the young ones terminating, the older from the forks of the branches. Lid reddish, pointed, very slender, readily falling off. Mouth with a short fringe. WEIS.

Woods, mountainous heaths, walls, and hedge banks.

P. March—July.

♂ HUDS.—Fruit-stalks and Capsules numerous and short.

Dill. 48. 41.

Snowdon. Aut. DILL.

Bryum cirrhatum β HUDS.

♂ HUDS.—Leaves much smaller than in ♀. R. *syn.* 98. n. 34.

Bryum cirrhatum. HUDS. γ

MINI'UM

long-leaved MNI'UM *anno'tinum*. Leaves egg-shaped, tapering to a point; transparent. Fruit-stalks from near the root: Capsules pendant.—

Dill. 50. 68.

Fruit bearing shoots straight, brittle. Leaves alternate. NECK.—Stem an inch high, simple, or branched almost from the bottom. Leaflets very entire. Fruit-stalks an inch high, purple. Stellated shoots with broader leaves. WEIS.—Bulbs solitary, in the bosom of the leaves, sitting, pellucid, roundish: LEERS.—The plant turns brown when soaked in water. DILL:

Bryum annotinum. Hudf.

Woods and moist shady places:

P. March, April. HUDS.—Summer. DILL.

swan's neck MNI'UM *hor'num*. Capsules pendant. Fruit-stalks bowed. Shoots simple: Leaves rough at the edge.—

Hedw. Theor. 11. 35.—Hist. ii. 5. 22, 23; i. 1. 2. 3. 4. 10, parts of fructification.—Dill. 51. 71.—Mich. 59:2.—Curt. i. 8.—Vaill. 24. 4. and 5.—H. ox. xv. 6. row the last, 3 and 4, represent it as it sometimes appears before it produces capsules.—(Vaill. 26. 12, is *M. crudum*.)

Stellated shoots-simple. Capsule-bearing shoots much branched. NECK.—Leaves finely serrated. HUDS.—Fruit-stalks terminating. NECK.—Grows in broad patches. Length four or five inches, one half beneath the surface. Shoots an inch long; or more, red; leaves yellow green, pellucid. Fruit-stalks to two inches long, red, upright; but bending at top like the neck of a swan. Veil crooked. Lid white. WEIS.—Veil deciduous.

Bryum hornum. Hudf. Curt. Weber:

Woods; moist shady and boggy places:

P. Feb.—May.

capillary MNI'UM *capilla're*. Capsules pendant. Leaves egg-shaped; keeled; with bristles at the ends. Fruit-stalks very long.—

Dill. 50. 67.—H. ox. xv. 6. row 5. 19.—Vaill. 24. 6.—Buxb. i. 63. 4, and ii. 4. 3, if meant for the plant are very ill done.

Shoots, at the ends of some a very small brown star. Very nearly allied to *Bryum caespitium*. LINN.—Shoots crowded. Fruit-stalks 6 or 7 lines long. Stellated shoots stemless. Capsule bearing shoots from half to one inch long. Leaves open in a moist, pressed ~~for~~, in a dry situation. Its sitting shoots; and expanding upper leaves, distinguish it from the *B. caespitium*, though it should not be in fruit. NECK.—Differs from *Bryum caespitium* in its greater

greater size, the lids of its capsules being sharp-pointed, and its leaves not shining. WEIS.

Mudwalls and heaths.

MNI'UM *crudum*. Capsules pendant. Veils spear-leaved bowed back. Leaves transparent.—

Hedw. stirp. i. 37.—*Dill.* 51. 70.—*Vaill.* 26. 12.

Leaves green, almost silky. Fruit-stalks long, red. LINN.—Half an inch high; not branched. Leaves, upper ones thrice as long as the lower, crowded, upright but open. Capsules upright, then pendant, and lastly upright again. Veil turning up when the capsule hangs down. Lid hemispherical, beak short, stellated plants not so tall. A powdery brown substance in the centre of the star. LEERS.—Fertile stem $\frac{1}{2}$ an inch Barren stem an inch high, or more. Leaves, the upper ones a little toothed towards the ends. Capsule bent horizontally. Mouth, outer fringe of 16 teeth. HEDWIG—Fruit-stalks from the ends of the young shoots; pale red. DILL.

Bryum crudum. HUDS.

Fens in Cambridgeshire. DILL.—Woods about Rydall, Westmoreland. HUDS. P. March—June.

MNI'UM *pyriforme*. Capsules pendant; turban-shaped. Fruit-stalk thread-shaped. Fertile flowers bristly. LINN.—Leaves bristle-shaped. HUDS.

Dill. 50. 60.—*Hedw. stirp.* i. 3; *hist.* i. 3. 12.—*Hall. enum.* 4. 7, at p. 118, repr. in *hist.* 45. 7, at iii. p. 41.

In this and in the *M. crudum*, the stem is half as long as the fruit-stalk. Beautifully shining. Leaves of a greenish golden hue. LINN.—Forming a firm turf. Distinguishable by its long slender leaves. Fruit-stalks an inch or more in length, terminating, purple, shining, issuing from a brownish green fence. Stellated shoots with longer leaves. WEIS.—Fruit stalks serpentine, pale red to golden yellow. Capsules pear-shaped, green, changing to yellow red. DILL.

Bryum aureum. HUDS.

Rocks in Nottingham Park. [Berwyn Mountain, in the road between Bala and Llangunry, and on Snowdon. Mr. Wood.]

P. March—June, [and July. Mr. Wood.]

MNI'UM *serpyllifolium*. Fruit-stalks incorporated. thyme-leaved Leaves expanding; transparent.—

α punctatum. Fruit-stalks incorporated. Leaves very entire; inversely egg-shaped; blunt; dotted.

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Hedw. hist. i. 10. 66 to 69.—Dill. 53. 81.—Happ. ii. 4.—Vaill. 26. 5.—Pluk. 45. 7, no fruit.—H. ox. xv. 6. 39, and 40, no fruit, and the leaves too oblong.

It varies in the fruit-stalks being solitary or incorporated, and also in the fertile shoots being upright, and the barren shoots creeping. WILLDENOW.—*Fruit-stalks* long, reddish. *Capsules* nodding. REYG.—*Fruit-stalks* 3 or 4 together. NECK.—Grows in large patches. *Stems* simple. *Leaflets* with a scarlet rib, cartilaginous and purple at the edges. *Fruit-stalks* terminating, generally single, sometimes 3 or 4 together; one to two inches high; thicker downwards. *Capsules* nodding, egg-shaped. *Seeds* greenish. *Shoots* without capsules, ending in roses. WEIS.—*Leaves* pellucid, smooth, pale green. *Fruit-stalks* one to three on a plant. DILL.

Watery places.

P. April.

β HUDS.—Leaves longer, more pellucid.

Dill. 53. 80.

Leaves longer and blunter than β of Linnæus. *Capsules* not so pendulous. *Lid* spit-pointed. *Fruit-stalks* three to five on a plant. DILL.

In bogs in the West Riding of Yorkshire.

Capsules half ripe in Spring. DILL.

β *cuspidatum*. *Fruit-stalks* incorporated. *Leaves* alternate, pointed, ferrated.

Dill. 53. 79.—Vaill. 26. 18.—Happ. ii. 6.

Fruit-stalks terminating, on shoots little branched. Other shoots stellated; others proliferous, with ferrated leaves. NECK.—*Leaves* longer than in (α) sharply ferrated, mid-rib pale-green, ending in a sharp point. WEIS.—*Shoots* trailing or upright, branched at the ends. *Fruit-stalks* solitary or incorporated. WILLDENOW.

B. serpyllifolium cuspidatum. HUDS.

Woods, moist heaths, shady places, and in bogs on heaths and meadows.

P. April.

γ *proliferum*. *Fruit-stalks* incorporated. *Leaves* spear-shaped; pointed; disposed in form of a rose.

Dill. 52. 77.—Buxb. ii. 1. 3.

Very elegant in form, shrub-like. *Stem* naked at bottom, foliage from one center at the top. *Leaves* from three to six lines long, and two broad. Other shoots often rise from this foliage. Some of these are barren roses, but others send out fruit-stalks, one or two inches long, bearing pale orange capsules. *Veils* not observed. WEIS.—Barren shoots not creeping. WILLDENOW.

Bryum serpyllifolium proliferum. HUDS.

Wet places in woods and heaths near Bishop's Castle. DILL.
—[Bungay, Suffolk. Mr. STONE.] Winter.

δ *undulatum*

undulatum. Fruit-stalks incorporated. Leaves oblong; waved.

Dill. 52. 76.—Vaill. 24. 3.—Mich. 59. 5.—Tourn. 326. E.—Fet. gaz. 95. 16.—H. ox. xv. 6, row the last, 1.—Neck meth. f. 6. at p. 273, a star-like head.

B. serpyllifolium undulatum. Hudf.—Fertile and barren plants distinct.—All the shoots upright, and branched. Neck.—The largest and most beautiful of the Mniums.

Root creeping horizontally, sending out reddish shoots from one to four inches high, which often branch out like a shrub. Fruit-stalks terminating, three or four together. Capsules green. Lid blunt. Veil pale brown. Ring fringed. Barren flowers surrounded by strap-shaped leaflets, in the centre of shoots ending in roses. WEIS.

Moist shady woods about the roots of trees, and hedges. P. April. Huds. 492.—Capsules and fruit-stalks very long.

Dill. 52. 78.—Buxb. i. 63. 3?—(Lob. ic. ii. 243. 1, repr. in Ger. em. 1563. 14, and cop. in Park. 1308. 9, appears to be rather *Polytrichum commune* β.)

Fruit-stalks reddish. Capsules pendant. Lid blunt. Leaves pellucid, ending in hairs. Root woolly, ochrey. DILL.

Wet places in woods and heaths.

Some esteem these varieties to be distinct species, on which account they are so disposed that they who think so, may readily refer to them as such. LINN.

1311. B R Y ' U M. Threadmoss.

Ess. CHAR. Capsule with a lid. Veil smooth. Fruit-stalk rising from a tubercle at the end of the stem.

* Capsules sitting.

B R Y ' U M *apocar'pum*. Capsules sitting, at the ends *sessile* of the branches. Veil very small.—

Vaill. 27. 15.—Hedw. stirp. i. 39.—Dill. 32. 4.—Fl. dan. 480, vaguely cop. in Hæpp. iii. 2; the entire plants more like variety β.

Shoots forming tufts; about an inch long. Capsule, lid pointed, elegantly coloured. Mouth fringed. Fringe very red. Neck.—Shoots one to two inches high; somewhat branched. Leaves at the ends of the shoots and branches, paler, longer, hairy at the end; from amongst these rise up fruit-stalks, very short, purple, with a yellow tubercle. Capsules oblong, smooth, green, changing to a yellow. Mouth purple, open, elegantly fringed. Lid scarlet. Veil pale yellow, deciduous. The Fruit-stalks are so enveloped by the leaves

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at the extremity of the shoots, that neither they nor the capsules can be distinctly seen, but the scarlet lid strikes the eye. WEIS.

Rocks, stones and trees. [Walls and roofs of houses in Bungay, Suffolk. Mr. STONE.] Nov.—April.

β Shoots longer and more branched, leaflets ending in hairs.

Hedw. stirp. i. 40.—*Dill.* 32. 5, *B* as when dry, *A* as when moistened.

—*Vaill.* 27. 18, as when moistened.

In spreading tufts like the preceding, but the stems are longer, more branched, more leafy. *Leaves* broader, terminating hairs longer than in α; dilute green in winter, hoary in spring. The ends of the branches often hooked, which never happens in the preceding variety. *Capsules* inclosed in leafy scales, green; the young ones at the ends, the old ones at the sides of the branches. DILL.

Rocks and trees. West Riding of Yorkshire. Grey Weathers near Marlborough. Hills about Bishop's Castle. DILL.—Rocks on the Highland mountains. LIGHTF. ST. Nov.—Jan.

[Upon stones, on hills about Stayley Bridge, near Manchester. April. Mr. BRADBURY.]

scored BRY'UM *striatum*. Capsules nearly fitting, scattered. Veils scored, or with hairs pointing upwards.—

OBS. Nearly allied to the POLYTRICHUMS, but wants the excrecence below the capsule. LINN.

Polytrichum striatum. Hudf. 471. Lightf. 704.

Trees and rocks.

Feb.—May.

α Fruit-stalks very short; lateral or terminating; leaves turned back at the edge, and gnawed at the ends.

Hedw. stirp. ii. 36, *hist.* i. 8. 47 to 54; ii. 7. 36.—*Neck. meth.*

1. 2, at p. 273, a capsule magnified.—*Dill.* 55. 8.—*Fl. dan.*

537. 3.—*Vaill.* 25. 5 and 6.

Shoots 1 inch high, branched. *Capsules* lateral. *Mouth* nearly smooth, without a ring. NECK.—Branched; 2 or 3 inches high. *Leaves* as if gnawed at the ends. *Florets* of both sorts on the same or on distinct plants. *Fruit-stalks* very short, sheathed at the base. *Capsule* egg-shaped. *Lid* small, beak blunt. *Fringe* double, 16 teeth in each. Is found both in flower and in fruit almost all the year. HEDWIG.

In woods on trees. The veils appear in winter, and the capsules in Feb. March, and April. DILL. P.

β Smaller than (α)

Hedw. stirp. 2. 37, *hist.* ii. 7. 35.—*Dill.* 55. 9.—*Vaill.* 27. 10.

—*H. ox.* xv. 6, row the last, 13.

Stems from $\frac{1}{2}$ inch to 2 inches; branched. *Fruit-stalks* lateral or terminating, 2 or 3 lines long. *Capsules*, mouth fringed; lid yellow.

yellow. Veil scored; rough with a few stiff hairs pointing upwards, which fall off with age. WEIS.—Plant smaller than the preceding; leaves smaller, darker green; veil paler and more distinctly toothed at the base. DILL.

On trees, stones, and walls, and on the ground.

Feb.—April. DILL.

γ Leaves short, straight, keeled.

Dill. 55. 10.

Differs from (β) in having leaves more slender and more pointed. Capsule more pear-shaped, and green, and its veil more hairy. WEIS.—Grows in tufts. Stem about an inch high, somewhat branched. Leaves numerous, straight, keeled, pellucid when wet, opaque and darker green when dry. Fruit-stalks very short, thick at the bottom. Veil brown, hairy, striated. DILL.

Rocks near Bangor. DILL.—[On stones on the side of a river which are washed by the water in high floods, Mr. GRIFFITH.] Autumn.

** Capsules on Fruit-stalks; upright.

BRY'UM *acicula're*. Capsules upright. Lid needle- mountain shaped. Leaves upright, mostly pointing one way.—

α Stems and leaves upright. HUDS.

Dill. 46. 25.

One or 1½ inch high. Branches upright. Leaves crowded. Fruit-stalks near an inch high, dark red, on the ends of the younger branches. DILL.

On stones thinly covered with mould near Llanberis, Caernarvonshire, and in the West Riding of Yorkshire. DILL.—In the Highlands and Lowlands frequent. LIGHTF. ST. P. May—Oct.

β Stems trailing. Leaves somewhat open. HUDS.

Fl. dan. 1001. 1.—Dill. 46. 26.—Hall. it. herc. in opusc. p. 152. f. 1. and 2. Bryum, &c. All the fruit-stalks represented as terminating.—Vaill. 27. 16.—Pet. mus. cent. i. t. 1. f. 74, cop. in H. ox. xv. 5. row 4. 29, representing it as dry, and the two left hand capsules represented as bowed down from an accident in the specimen from which the drawing was made.

Shoots branched, floating in the water or resting on stones. Leaves brown green. Fruit-stalks short and blackish. Capsules oblong, straight, dark green. Veil black. DILL.

On large stones that lie in the rivulets in the moors of the Peak of Derbyshire. PET. and in the mountain torrents near Llanberis, Caernarvonshire. DILL.—[North Wales. Mr. GRIFFITH.]

P. Aug.

pointed B R Y ' U M *acu'tum*. Capsules upright, roundish. Leaves bristle-shaped, upright. Shoots branched, pointed. HUDS.

Dill. 47. 34.

Slender, 1 inch high, branches 2 or 3, sometimes more. *Leaves* dark green, hairy, sharp-pointed. *Fruit-stalks* short, when young, terminating. *Veil* brownish. *Capsules* short, roundish. DILL.

Snowdon, and mountains about Llanberis. DILL.—On Ben Lomond, and sides of Highland mountains. LIGHTF.

Aug.—May. DILL.—Oct.—June. LIGHTF.

conferva-like B B Y ' U M *æstivum*. Capsules upright, roundish; from the bosom of the branches. Leaves awl-shaped; distant.—

Dill. 47. 36.—(Hall. 45. 1, at ii. p. 41, is *B. capillaceum*.)

B. æstivum. Hudf. is *B. capillaceum*, which see.

Stems 1 to 3 inches high; upright. *Branches* 3 or 4, or more, all of a length; these again sometimes divide into other equal branches. *Leaves* very short. *Fruit-stalks* $\frac{1}{2}$ to 1 inch. *Capsules* cylindrical. *Mouth* hairy when magnified. NECK.—Growing in bundles. *Leaves* few, alternate. When dry the plant preserves its beautiful bluish green colour. DILL.

Marshy places. RICHARDSON in Dill. 375.

bearded B R Y ' U M *barba'tum*. Capsules upright, oblong, bearded. Lid taper-pointed, oblique. Fruit-stalks lateral. CURT.

Curt. iv. 46.—Dill. 48. 48.

Grows in tufts, $\frac{1}{2}$ an inch high, somewhat branched. *Leaves* spear-shaped, pointed. *Fruit-stalks* $\frac{1}{2}$ inch or more from the base or the middle of the branch, but never terminating. *Capsules* slender. *Veil* long. *Lid* long, slender, conical. *Fringe* orange-coloured, or scarlet, twisted like a screw. CURTIS.—The 45th pl. of Dill. is referred to by mistake in the observations of Mr. Curtis.—*Branches* of equal thickness, sent off from the lower part of the plant. DILL.

On walls.

P. Dec.—Feb.

twain B R Y ' U M *biparti'tum* Capsules upright, somewhat slanting, finely toothed. Shoots cloven. Leaves spear-shaped, pointed, keeled, between tiled and open. DICKS, ii. 7.

Dill. 49. 50.

Branches and *Fruit-stalks* in pairs. *Capsules* oblong, brownish. *Lid* short. *Veil* slender, pointed. *Leaves* narrow, keeled, dark green. DILL.
Hedges

Hedges in gardens, walls and ditch banks, common.

Feb. March.

BRY'UM *brevifo'lium*. Capsules upright, oblong, *short leaved* tapering, imperfectly fringed. Leaves crowded, strap-shaped, keeled. DICKS. ii. 4.

Dill. 47. 39.

Slender, but little branched. *Leaves* dark green, very narrow and short. *Fruit-stalks* terminating the new shoots, short. *Capsules* oblong, small, dark brown. DILL.

In bogs.

BRY'UM *calca'reum*. Without a stem. Capsules *calcarious* upright, inversely conical, toothed. Leaves upright, cylindrical, bluntish. DICKS. ii. 3.

Dichf. 4. 3.

A dwarfish plant, smaller than *B. paludosum*, but the capsules sufficiently large and conspicuous. *Lid* conical, with a beak somewhat slanting. *Veil* slender, slanting. DICKS.

On limestone rocks near Newmarket Heath.

BRY'UM *canes'cens*. Stem upright. Leaves crowded, *grey-leaved* bent back, white at the ends. Capsules upright, egg-shaped. HEDWIG.

Hedw. stirp. iii. 3.—Vaill. 26. 14.—Dill. 47. 27.

Stem upright when young, afterwards declining, and sending out a few branches of various lengths, *Leaves* spear-shaped, keeled, pressed to when dry. *Fruit-stalk* straight, $\frac{3}{4}$ of an inch in height. *Capsule* oblong-egg-shaped. *Lid* a slender cone. *Mouth* fringed with 16 long hair-like teeth, divided down to the base. *Veil* slender, long, ragged at bottom. HEDWIG.—*Fruit-stalks* lateral. *Ibid.*—Terminating. NECK. WEIS.—Probably as in the case of many other species, from the ends of the old stems, and from the sides of the young branches.

Bryum hypnoides β . *Fl. succ.*

Trichostomum canescens. Hedw. stirp. iii. p. 5. Differs from the *B. hypnoides* in its upright stem, its leaves being very slightly ferrated only at the ends, and in its longer fruit-stalk. HEDWIG.—When moist and growing, yellowish green, when dry woolly, from the number of hairs which terminate the leaves. DILL.

Common in dry, high, barren, sandy places. — Blackheath, Woolwich, Hampstead, Enfield Chace, and Dartford heath. DILL.

Feb.—March. P.

BRY'UM

capillary B R Y ' U M *capilla'ceum*. Capsules upright, oblong. Fruit-stalks terminating. Leaves bristle-shaped, open, running down the stem. DICKS. 4.

Hedw. stirp. ii. 26.—*Fl. dan.* 1000. 1.—*Dicks.* 1. 6.—*Hall. enum.*

4. 1, at p. 118, repr. in *hist.* 45. 1, at ii. p. 41.

Capsules oblong. Leaves expanding, bristle-shaped. Stems thread-shaped. HUDS.—Differs from *B. heteromallum* in its open leaves, and the shape of its capsules; and from *B. flexuosum* in its fruit-stalks slender, quite straight, and not zigzag, and in the smallness of its capsules. DICKS.—Stem undivided, upright, $\frac{1}{2}$ an inch high. Leaves in 2 rows, alternate. Barren and fertile flowers together, terminating. Fruit-stalks $\frac{1}{2}$ to 1 inch long. Veil opening at the side. Capsules cylindrical. Lid short, conical. Mouth, fringe single, teeth in pairs. HEDWIG.

B. æstivum. HUDS. 485.

On rocks, and moist mountainous situations. On Ingleborough plentifully. HUDS.—About Llanberris. Mr. DAVIES.—Marshy places in mountainous situations. DICKS.—[On the rocks above Cwm Ffynnon felen, near Llanberris abundantly. Mr. GRIFFITH.—Spink's Grove, Brome, near Bungay. Mr. STONE.]

P. April—June.

convoluted B R Y ' U M *convolu'tum*. Capsules upright, oblong, bearded. Leaves spear-shaped. Empalement cylindrical. DICKS. ii. 6.

Hedw. stirp. i. 32.—*Dill.* 48. 44.—(*H. ox.* xv. 6. row 4. 12, as *Dill.* very justly observes, is more like *B. pulvinatum*, or rather perhaps *B. rurale*.)

Grows in dense tufts, $\frac{1}{2}$ an inch or more in height; branches issuing out of the thickened tops of the old shoots, which are stellated at the ends. Leaves loosely disposed, ending in hairs. Fruit-stalks from the last year's shoots, 1 inch long, encompassed at the base by a fence of awl-shaped hairy leaves. WEIS.—Sometimes with forked branches. Leaves very slender, hardly $\frac{1}{4}$ of a line broad at the base, very entire. Empal. terminating, embracing closely the base of the fruit-stalk. Capsule cylindrical, a line long, hardly $\frac{1}{4}$ as broad. Mouth without a ring; fringe red. Lid slender, upright, awl-shaped. Veil pointed, smooth, thread-shaped, reaching but half way. POLLICH.—Inner Fence leaves heart-shaped, blunt.

B. setaceum. Hudf. 481. Lightf. 729.—(*Mnium setaceum* of Linn. is a different species which has rigid bristle-shaped leaves.) DICKS.

Heaths, ditch banks, hedges and walls very common. A. March.

BRY'UM *crispum*. Leaves strap-shaped, broadest at *heath* the base, crowded, crisped when dry, Capsules egg-shaped. Fruit-stalks thicker upwards. (HEDWIG.)

Hedw. stirp. ii. 35.—*Dill.* 55. 11.—*Pet. mus. f.* 25.—*Vaill.* 27. 9.

In dense tufts, so close, that the under parts decay. About 1 inch high, branched. *Barren* flowers in the bosom of the leaves. *Sheath* scarlet. *Fruit-stalks* terminating, short, straightish, thickening at the top so as to coincide with the pear-shaped Capsule. *Capsule* from the above circumstance appearing pear-shaped, but it is really globular-egg-shaped. *Lid* with a straight short beak. *Ring* none. *Fringe* double, 16 teeth in each. *Veil* pyramidal, hairy, HEDWIG.

♂ *Bryum striatum*. Linn. Syst. pl.

Orthotrichum crispum. Hedw. stirp. ii. 96.

Trunks of trees.—Woods near Southgate in Middlesex. [Not common. Near Bungay, Suffolk. Mr. STONE.] Flowers in spring. Capsules ripe in May or June. P.

BRY'UM *curvirostrum*. Capsules upright, oblong, *crooked beak-* finely toothed. The beak of the lid slightly bowed back. *ed* Leaves spear-shaped, open. DICKS. ii. 7.

Hedw. stirp. i. 7.—*Dill.* 48. 45.

The trivial name bad, for it does not always retain that character. MAJOR VELLE.—*Stem* upright, not branched, about $\frac{1}{2}$ inch high. *Fruit-stalk* upright, generally terminating the old stem. *Veil* long, conical, crooked. *Lid* convex, beak straight whilst under the veil, afterwards crooked, but in a direction opposite to the bend of the veil. HEDWIG.—*Stem* sometimes branched. (*see fig. Dill.*) *Leaves* very slender, keeled, upper ones the longest. *Fruit-stalks* red, $\frac{1}{2}$ an inch high, or better. *Capsules* and *Lid* red. DILL.

Woods in dryish places.—Sandy stony places, interwoven with the grass. P. Aug.

BRY'UM *dealbatum*. Capsules upright, roundish, *crisped* somewhat bowed in, toothed and fringed. Leaves spear-shaped, pointed, expanding. DICKS. ii. 8.

Dicks. 5. 3. a. b. c.

Habit that of *B. trichodes*, from which it differs as follows. *Leaves* spear-shaped, mostly pale, under the microscope reticulated, pellucid, finely but obscurely serrated at the end. *Lid*, beak short. DICKS.

Mountains in Scotland; on Ben Lawyers.

BRY'UM *ericetorum*. Capsules upright, egg- *whitened* oblong, with a fringed ring. Leaves strap-spear-shaped, twisted when dry. DICKS. ii. 5.

Dill.

Dill. 45. 13.

Leaves pellucid, not hairy, keeled, standing out, dull green. *Capsules* slender, nearly cylindrical. *Fruit-stalks* pale brown, $\frac{1}{2}$ an inch long. *Veil* and *Lid* deciduous. DILL.

Turfy heaths, Scotland.

extinguisher

B R Y ' U M *extincto'rium*. Capsule upright; oblong; smaller than the veil. Veil loose, equal at the base.—

Hedw. stirp. i. 18; *hist.* ii. 4. 19; *theor.* 8. 5 to 9.—Dill. 45. 8.

—*Vaill.* 26. 1.—*H. ox.* xv. 7. row 1. 12, only the fruit, the stems being those of another species. See *R. syn.* 93.—*Pet. mus. f.* 89, very imperfect.

Veil wide at bottom. *Fruit-stalks* terminating. *Capsule*, mouth not fringed. *NECK*.—Grows thick together in patches, from $\frac{1}{2}$ to 1 inch high; sometimes a little branched towards the top; very leafy, ending in roses. *Fruit-stalks* not $\frac{1}{2}$ an inch long, upright. *Capsules* cylindrical. *Lid* sharp-pointed. *Veil* large, and hanging down below the capsule.—The veil covering the whole capsule and hanging down below it, distinguishes this from every other Moss. POLLICH. DILL.

Graffy places in a sandy soil, dry heaths, and rocks. [Castle walls, Bungay, Suffolk. Mr. STONE.] P. Oct.—Aug.

β Veil cut at the base.

Hedw. stirp. i. 19; *theor.* 9. 10 to 14, the fructification; *hist.* ii. 5. 24. a, the seeds.—*Fl. dan.* 1001. 2.—Dill. 45. 9.

Whole plant larger and more branched.—*Capsule*, mouth fringed. *Veil* cut at the base into 6 segments; grey, bent inwards. LINN. *Suec.* n. 990.—*Leaves* retaining their green colour when dry.

Rocks about Ludlow Castle. Ripens its capsules in summer, the preceding variety in winter. DILL.

Early in the spring to July. P.

yellowish

B R Y ' U M *flaves'cens*. SCOP. n. 1305? Capsules upright, cylindrical fringed. Shoots mostly simple. Leaves spear-strap-shaped, keeled. DICKS. ii. 4.

Dickf. 4. 5. a. b.—*Scop.* 62. 1305, at ii. p. 321.

Shoots nearly upright. *Leaves* between upright and open, yellowish, the points when dry twisted. DICKS.—Grows in broad patches. *Leaves* 2 lines long, 1-3d of a line broad. *Fruit-stalks* 1 inch long, saffron-coloured. *Capsule* slender, long. *Veil* red at the top, near 2 lines long. SCOP.

Bogs in the Highlands.

B R Y ' U M *flexuosum*. Capsules upright. Leaves *soft* bristle-shaped. *Fruit-stalks* zigzag. — *Leaves* upright. *Fruit-stalks* terminating. HUDS.

Dill. 47. 33.

Shoots 3 or 4 inches long. *Leaves* pressed to. *Fruit-stalks* yellow green, an inch long. *NECK*.—Grows in dense patches. *Shoots* adhering at bottom, $\frac{1}{2}$ an inch or more in height, branched upwards. *Leaves*, lower ones downy at the base; upper ones very closely set; *Empal.* closely embracing the fruit-stalk. *Fruit-stalks* lateral. *Capsules* straight or slightly bent, egg-shaped, scored, 1 line long. *Ring* none. *Lid* awl-shaped. *Veil* smooth, reaching but half way. *POLLICH*.—About an inch high, but little branched, slender, thicker upwards. *Leaves* hairy, yellow green. *Fruit-stalks* green, turning yellowish, variously bent and twisted. *Capsules* oblong, slender. *Lid* pointed, red. *Veil* whitish. Sometimes 2 or 3 fruit-stalks arise from one branch. *DILL*.

Ireland. Rocks about Llanberris. *DILL*.

P. April—June.

B R Y ' U M *glau'cum*. Capsules nearly upright. *Lid* *white* bowed. *Leaves* upright; tiled. *Shoots* branched.—

Dill. 46. 20.—*Vaill.* 26. 13.—*H. ox.* xv. 6. row the last, 22 not in fructification.

Stem with the appearance of *Sphagnum palustre*. *Leaves* whitish. *Lid* awl-shaped. *LINN*.—Grows in dense patches, varying in height from 1 to 4 inches, dividing towards the top into short thick branches. *Leaves* awl-shaped, very brittle when dry. *WEIS*.—*Fruit-stalks* terminating, hardly an inch long, sheathed at the base. *Capsules* long-egg-shaped, leaning when old. *HALL*.—*Leaves* 3 lines or more in length, very entire. *Lid* awl-shaped, very sharp pointed. *Mouth* fringed. *POLLICH*.—Whole plant brittle, greyish when growing, or pale glaucous green; whitish when dry. *Veil* slender, white. *DILL*.

Mountainous heaths and pastures.

P. Aug.—Nov.

B R Y ' U M *Hei'mii*. Capsules upright, oblong. *Lid* *Heimius's* obliquely beaked. *Leaves* spatula-shaped, taper-pointed, finely toothed. *DICKS.* ii. 4.

Hedw. stirp. i. 30.

Stem near $\frac{1}{2}$ inch high, unbranched, upright. *Fruit-stalks* terminating, near an inch high. *Veil* opening at the side. *Capsules* long-egg-shaped. *Lid*, beak bent to one side. *Fringe* none. *HEDWIG*.

Sandy places; in Northern exposures.

Feb.—June. P.

B R Y ' U M *heteromal'lum*. Capsules upright. *Leaves* *heath* bristle-shaped, pointing one way.—

Hedw.

CRYPTOGAMIA.

Hedw. stirp. i. 26, *hist.* i. 9. 55, 56.—*Vaill.* 27. 7.—*Dill.* 47. 37.
—*Fl. dan.* 479.—*H. ox.* xv. 6. row 3. 5, and in 7 the leaves
straight.—*Buxb.* ii. 2. 8.

The bristle-shaped leaves longer than in any other of our species.
LINN.—Leaves hooked. **SCOP.**—In tufts. *Fruit-stalks* from the back
of the shoots. *Capsules* elegantly coloured. **NECK.**—In habit resem-
bling the *B. scoparium*, but much smaller. *Capsules* egg-shaped.
Lid, beak short. **WEIS.**—*Stem* $\frac{1}{2}$ inch high, upright, but not straight.
Leaves not curled when dry. *Barren flower* always terminating.
Fruit-stalks upright, single or in pairs. *Veil* opening at the side,
deciduous. *Lid*, beak bent. *Fringe* of 16 teeth. **HEDWIG.**—Seldom
branched. *Leaves* hair-like, fine green, mostly pointing one way.
Fruit-stalks $\frac{1}{2}$ to 1 inch high, green, changing to fine red, sometimes
in pairs. *Veil* pale green. **DILL.**

Hedge banks, heaths, and roots of trees. On Snowdon. **DILL.**

A. March—May.

woolly **BRY'UM hypnoides.** *Capsules* upright. *Stem* nearly
upright. *Lateral branches* short, supporting fruit-
stalks.—

Hedw. stirp. iii. 2; *hist.* ii. 8. 43, 44. — *H. ox.* xv. 5, row 2. 7.
—*Dill.* 47. 32.—*Hall. enum.* 3. 4, at p. 109, repr. in *hist.* 46. 4,
at iii. p. 56.—*Fl. dan.* 476, cop. in *Happ.* iii. 3.—*Pluk.* 47.
5, ill done.—(*Dill.* 46. 26, is *B. aciculare* β .)

Grows in dense patches, nearly upright, from 1 to 6 inches high,
more or less branched; larger branches sending out numerous small
ones, short, alternate, thickest at the end. *Leaves* very narrow,
pointed, ending in a long shining whitish hair. *Fruit-stalks* upright,
4 or 5 lines long, from near the ends of the branches; fenced at the
base. *Capsules* egg-shaped. *Lid* tapering to a point. **WEIS.**—
Leaves a little toothed at the sides, but this most conspicuous in the
dried plant. *Capsule* upright. *Mouth* fringed with 16 teeth, hair-like,
separate quite down to the base. **HEDWIG.**—*Shoots* rigid, from 4 to
12 inches long, spreading on the ground. *Branches* short, irregular,
thicker than the shoot. *Leaves* green, very slender, ending in long
grey hairs. **DILL.**

Mountains of Wales. *R. syn.* Snowdon, Glyder. Mendip Hills
Yorkshire. **DILL.** Autumn. P.

β **LINN.**—Green, hairy, in clusters. **DILL.**

Dill. 47. 28.

Yellowish green; without grey hairs, growing in bundles. **DILL.**
Snowdon. **DILL.** Sept.

γ *Capsules* bearded.

Dill. 47. 34.

Leaves

Leaves short, slender, keeled. *Fruit-stalks* from the division of the branches. *Capsules* pyramidal. *Lid* spit-pointed. Though this plant is not properly hairy, it has a rough appearance. DILL.

Snowdon. DILL.

ε Fl. fucc.—Lids blunt. DILL.

Dill. 47. 30.

Leaves crowded, very small, yellowish or brownish green. *Fruit-stalks* from the upper branches, $\frac{1}{2}$ inch long, pale. *Lid* not pointed. DILL.

Snowdon. DILL.

Aug.

It forms a cushion on the rock. LINN.

BRY'UM *imber'be*. Capsules upright, dilated at the mouth. Leaves keeled, open. LINN.—Capsules oblong, beardless. Leaves spear-shaped, expanding. HUDS. 481.

Hedw. stirp. i. 24.—Dill. 48. 46.

Shoots branched. Leaves strap-shaped, keeled. Fruit-stalks upright, solitary, terminating and lateral, $\frac{1}{2}$ inch long. Capsules cylindrical, 1 line long, deep saffron coloured, blackish at the base. WEBER.—Fringe long. HALLER.—Not an inch high, upright, unbranched at first, but every year sending out branches after the flowering season. Leaves broad at the base, and keeled. Barren flower terminating. HEDWIG.—Grows in dense tufts. Stems slender, $\frac{1}{2}$ to 1 inch high, dividing into branches. Leaves very slender, pale green, upper leaves bent back. DILL.

Sandy heaths, ditch banks, and walls. [Bungay, Suffolk. Mr. STONE.] Winter. DILL. A. March, April. HUDS.

BRY'UM *latera'le*. Capsules upright, lateral. Leaves bristle-shaped, pointing one way. LIGHTF. 727.—Capsules oval. HUDS. 483.

Hedw. stirp. ii. 40.—Hall. enum. 3. 8, at p. 109, repr. in hist. 46. 8, at iii. p. 56.—Hall. it. helv. ii. 1. 2. in opusc. p. 300.—Fl. dan. 823. 1; and 538. 3.

Stems forming tufts, from 1 to 3 inches high; almost upright, purplish, but little branched; covered at the base with fox-coloured wool. Leaves numerous, very green, bristle-shaped, soft, long. Fruit-stalks upright, short, purple. Veil conical, sharp, pale, deciduous. Capsules fringed, tawney. Lid conical, very short, tawney. HUDS.—Chives and pointals in the same empalement. Fruit-stalks short, stiff, but bending by the weight of the Capsule, fixed to the end of the last year's shoot, but the growth of the new shoot makes it appear lateral. Outer fringe of 16 teeth. HEDWIG.—In the *B. pomiforme*, the leaves are more equally tapering, and the fruit-stalks are longer.

Shady

Shady woods by the sides of the Highland mountains, and the sides of rivulets in the fir forests. On Hart-fell mountain near Moffat.
P. May—Sept.

wall B R Y ' U M *mura'le*. Capsules upright. Leaves straightish, terminating in hairs. Shoots simple; growing close together, and forming a tuft.—

Dill. 45. 14. *A. E.*—*Vaill.* 24. 15, *in a tuft.*—*Buxb.* i. 64. 4.
—*Mich.* 59. 7.

Grows in a round convex tuft, or little cushion. LINN. ST.—*Fruit-stalks* green, short, and bowed back, so that the egg-shaped capsule seems to lie upon the leaves. *Lid* taper-pointed. *Veil* very thin, and very short. LINN. *fl. succ.*—Grows in broad patches, or in circular buttons convex in the middle. Hardly more than 4 or 5 lines high, seldom branched, ending in roses. *Leaves* ending in grey hairs, as long as the leaf. *Fruit-stalks* terminating, near an inch long, straight. *Capsules* straight, nearly cylindrical. *Veil* oblique. Nearly allied to the *B. pulvinatum*, but distinguishable by the greater length and straightness of its hairs. When young it is destitute of hairs. *Dill.* 45. 15. WEIS.—*Leaves* opaque, approaching, rigid, fine green when wet, dull green when dry. DILL.

Walls, roofs, tiles, stones, rocks and sandy places, everywhere.

P. Nov.—March.

β HUDS.—Small; without hairs.

Dill. 45. 15.—*Buxb.* i. 64.

Leaves shorter, broader, softer than in the preceding; pellucid, green, not hoary with hairs. Grows much crowded together, but not in a circular form. DILL.

On banks of earth near Streatham, Surrey, and at Oxford. Winter. DILL.

blunt B R Y ' U M *obtu'sum*. Capsules upright, inversely egg-shaped, lopped. Lid convex. Leaves spear-egg-shaped, taper-pointed. DICKS. ii. 5.

Dicks. 4. 7. a. b.

Fringe none. *Veil* bell-awl-shaped. *Leaves*, under the microscope, reticulated, finely toothed. Differs from *B. truncatulum* in the beaked lid, and its capsule being longer, &c. DICKS.

Stones and rocks on Ben Crechan, Scotland.

egg B R Y ' U M *ova'tum*. Capsules upright, egg-shaped. Leaves egg-shaped, concave, ending in hairs. DICKS. ii. 4.

Hedw. stirp. i. 6.—*H. ex.* xv. 7. 13.

Very

Very minute, unbranched, with scarcely any stem. *Flowers* terminating. *Fruit-stalk* upright, not longer than the capsule. *Veil* reddish brown. *Lid* conical, beak oblique. Very common on mud walls, spreading in broad and dense patches; seldom on the ground. HEDWIG.

Pastures. Mud walls.

April, May.

B R Y ' U M *paludosum*. Stemless. Leaves bristle-shaped. Capsules very blunt; open.—

Dill. 49. 53.

Differs from *B. viridulum* in its brown capsules, and the leaves not curling when dry. LINN.—Growing in patches. NECK.—Extremely small, only observable from its growing in a quantity together. *Leaves* minute, hair-like, but expanding. *Fruit-stalk* terminating, 2 or 3 lines long. *Capsules* egg-shaped; *Mouth* wide, minutely fringed. *Veil* slender, upright. Differs from the *B. virens* in the darker green of its leaves, their being slenderer, not curling when dry, and in having smaller capsules. WEIS.—Always grows singly, never in tufts. WILLDENOW.—*Leaves* very slender, scarce sensibly broad, soft, dull green. *Capsules*, *Lid* deciduous, leaving a large open for the size of the capsule. DILL.

In sandy marshes and turfy ground in Yorkshire. RICHARDSON in *Dill.* 387.—Moist rocks, and sometimes decayed wood in damp shady places. LIGHTF. A. March—May.

B R Y ' U M *pa'tens*. Capsules upright, somewhat pear-shaped, fringed. *Fruit-stalks* very short. Shoots nearly expanding upright. Branches expanding, rising nearly to the same height. DICKS. ii. 6.

Dicks. 4. 8. a. b.

Shoots somewhat flanting, nearly cylindrical, tapering towards the base, very much branched. *Branches* unequal, rather pointed, somewhat higher than the fruit-stalks. *Leaves* tiled, pressed to, the points standing out, quite straight, strap-spear-shaped, pointed, channelled. *Fruit-stalks* from the sides of the uppermost branches, few, solitary, very short, often zigzag. *Capsules* small. *Fringe* fringed. DICKS.

On rocks in mountainous rivulets. On Ben Nevis, Scotland.

B R Y ' U M *pellucidum*. Capsules leaning. Leaves transparent bowed back; pointed. Stem hairy.—

Hedw. theor. 8. 1 to 4.—*Dill.* 46. 23, 24.—*Fluk.* 44. 7.—*Fluk.* 49. 1, in which several shoots rise from the top of that of last year.

Stem about 2 inches long, branched. *Leaves* spear-shaped, remarkably

markably shining, ending in a stiff hair. *Fruit-stalks* 1 inch long. *Capsules* slender, fringed. POLLICH.—*Fruit-stalks* sometimes in pairs; terminating. *Capsules* brown when dry. DILL.

Marshy and shady places. Near North Bierly not far from Bradford, Yorkshire, and on the sides of lakes on Glyder and Snowdon mountains. P. June—Sept.

apple BRY'UM *pomifor'me*. *Capsules* upright; spherical.—*Dill.* 44. 1.—*Fl. dan.* 478.—*Vaill.* 24. 9 and 12.—*Buxb.* v. *app.* n. 4.—*H. ox.* xv. 6. row 4. 6, *capsules* ripe.

Leaves bristle-shaped. *Fruit-stalks* solitary, purplish below. *Capsules* globular. *Veil* very much pointed, very small, oblique. LINN.—Grows thick together in broad patches. *Stems* about an inch high; the old ones branched, the young ones simple. *Leaves* very slender, serrated towards the ends. *Fruit-stalks* full $\frac{1}{2}$ inch long, from the ends of the younger shoots, one or more in a place. *Capsule* at first slender, when ripe globular. *Mouth* wide, fringed. *Veil* deciduous. WEIS. and DILL.

Heaths, rocks, and banks.

A. Feb.—April.

dwarf BRY'UM *pusillum*. HEDW. *hist.* ii. 32 and 37.—*Capsules* upright, oblong fringed. *Leaves* concave egg-shaped, awl-shaped. DICKS. ii. 6.
Hedw. stirp. i. 28.

Stem unbranched, upright, very minute, not more than 2 or 3 lines high. *Leaves* concave and egg-shaped at the base, but very long and slender upwards. Barren flowers in the bosom of the leaves. *Fruit-stalks* on the same plant, terminating, thrice as long as the stem, nearly upright. *Fringe* single, of 16 teeth, deeply divided, red. HEDWIG.

In sandy places.

A. Feb.—March.

pear-headed BRY'UM *pyriforme*. *Capsules* upright, inversely egg-shaped. *Veil* awl-shaped. Shoots without stems. *Leaves* egg-shaped, without hairs.

Hedw. theor. 9. 16 to 19; and 10. 20 to 22; 14. 63, 64, 65; *hist.* ii. 1. 2, 3, 7, 31; 2. 6. a. β ; 4. 18, a. b. 5, 24, 6.—*Dill.* 44. 6.—*Fl. dan.* 537. 1.—*Vaill.* 29. 3.—*H. ox.* xv. 7. row 2. 16. p. 631.—*Buxb.* i. 64. 1.

Fruit-stalks $\frac{1}{2}$ to 1 inch long. RELH. n. 1015.—Very short. Upper leaves forming roses round the terminating fruit-stalk. WEIS.—*Lid* with a short beak. SCOP.—*Leaves* 1 line broad, $1\frac{1}{2}$ long. *Empal.* none. *Fruit-stalk* about 3 lines long. *Capsule*, mouth without fringe. POLLICH.—*Veil* before the capsule swells, 4 sided; afterwards it tears

tears into 2, 3, or 4 segments. *Leaves* tender, pellucid, pale green. *Capsules* large for the size of the plant, which rises but little above the ground. DILL.

Heaths, hedges and ditch banks. [Near Burghay, Suffolk. Mr. STONE.] A. Feb. March and April.

BRYUM *reticulatum*. Capsules upright, pear-shaped, *net-work* toothed. Leaves egg-shaped, serrated, reticulated. Dicks. ii. 4.

Dicks. 4. 6. a. b.

Shoots upright. Leaves distant, rather pointed, of a remarkable net-work texture, transparent, serrated towards the end, below very entire. *Fruit-stalk* from the base of the plant. Capsules, teeth bent in. Dicks.

On Ben High in the Highlands.

BRYUM *rigidum*. Stemless. Capsules cylindrical, *rigid* upright. Leaves expanding, strap-shaped, convex, stiff. Huds. 477.

Hedw. *florp.* i. 25.—Dill. 49. 55.

Stems very short. Leaves very entire, bluntish, flat above, convex underneath, naked. *Fruit-stalk* terminating, solitary, upright, $\frac{1}{2}$ inch long, purple. Veil conical, pale. Capsules fringed, smooth. Lid taper-pointed, purple at the base, half as long as the capsule. Huds.—Fertile plant always taller and slenderer than the barren plant, but both of them short and thick. Fringe red, composed of 32 long slender filaments, spirally twisted together when moist. Hedw. —Leaves stiff, like those of Heath. DILL.

Moist rocks near Wigmore, Herefordshire. Brown in Dill.—On Ingleborough, Yorkshire. Huds.—On clay walls in Germany. [Thorpe, near Norwich. Dr. J. E. SMITH.] P. Nov.—July.

BRYUM *ruralis*. Capsules nearly upright. Leaves grey bowed back, terminating in hairs.—

Hedw. *list.* i. 6. 28 to 32.—Dill. 45. 12.—Vaill. 25. 3.—H. ex. xv. 6. row 3. 1. and row 4. 2.—Buxb. v. 44. 1.

Fruit-stalks from the ends of the young shoots, from the sides of the older ones. Neck.—Grows in tufts, often circular. Shoots upright, branched, 1 or 2 inches high, stellated at the ends. Leaves numerous, broad spear-shaped, pointed. *Fruit-stalks* an inch high, surrounded by a fence at the base. Capsules cylindrical; mouth with a long fringe. Lid a long cone. WEIS.—Grows in dense and elevated tufts. Stems upright, branched, 1 to 2 inches high. Leaves crowded, standing open, fine yellowish green when wet, but dull greyish and brownish in dry seasons. DILL.

Roofs both thatched and tiled, walls and trunks of trees.

P. Dec.—April.

When this takes to grow upon thatched buildings so as to cover the thatch, instead of lasting but about ten years it will endure for an age.

broom BRY'UM *scopa'rium*. Capsules nearly upright. Fruit-stalks incorporated. Leaves pointing one way; bowed back. Stem declining.—

Dill. 46. 16.—Curt. i. 7.—Vaill. 28. 12.—Buxb. ii. 4. 1.—Hedw. hift. ii. 8. 41.—Fl. dan. 824. 1.

Fruit-stalks about 2 inches long; in the young shoots terminating; in the full-grown shoots in the bosom of the branches. NECK.—Grows in dense patches, branched, nearly upright, 1 to 3 inches high. Leaves slender, long, ending in a long sharp point, expanding. Fruit-stalks 1 or 2 inches high, generally solitary. Capsules cylindrical, thick, a little crooked, scored. Lid, beak as long as the capsule. Mouth toothed. Veil long. WEIS.—Frequently several fruit-stalks in one empalement. WILLDENOW.

Heaths, woods, trunks of trees, shady banks, and dry pastures.

P. Feb. and March. CURT.—June and July. HUDS.—April—July. LIGHTF.

β H. ox. xv. 7. 11 and 13.

Splachnum BRY'UM *splachnoi'des*. Capsules upright, inversely egg-shaped, toothed. Excrescence roundish. Leaves strap-bristle-shaped. DICKS. ii. 5.

Fl. dan. 538. 2.

Leaves numerous, upright, open, some bowed back. Empalement small, hunched, beneath the capsule. DICKS.

On rocks on Ben Nevis, Scotland.

starry BRY'UM *stella'tum*. SCHREB. lisp. 80. n. 1040.—Stemless. Capsules upright, pointed, bearded. Leaves egg-spear-shaped, pointed, somewhat rolled in. DICKS. ii. 6.

Dill. 49. 56.

On ditch banks and brinks of rivulets, Scotland.

starry BRY'UM *stellig'erum*. Capsules upright, semi-globular; naked. Leaves strap-shaped, in star-like whorls. DICKS. ii. 3.

Dicks. 4. 4. a. b.

Shoots branched, star-like at the end. Leaves expanding, a little bowed back at the ends; somewhat whorled. Fringe naked. Lid flattish, the beak somewhat oblique; as long as the capsule. DICKS.

Woods in the Highlands.

BRY'UM

BRY'UM *subula'tum*. Capsules upright, awl-shaped. *awl-shaped*
Shoots stemless.—

Curt. iii. 36.—*Fl. dan.* 1000. 2.—*Vaill.* 25. 8.—*Hedwig. hist.* ii.

7. 38 and 39, capsule magnified.—*Dill.* 45. 10.—*Buxb.* i. 63.

2; ii. 2. 3 and 4.

Fruit-stalks 1 to 1½ inch long, yellowish. **NECK**.—Grows crowded together; but little branched, terminating in roses. *Fruit-stalks* an inch or more in length, purplish, thinning, straight, twisted. *Capsules* cylindrical, slender, 3 or 4 lines long, becoming crooked when dry, ripe in summer. *Leaves* pellucid, pale green, with or without hairs. **WEIS** and **DILL**.—*Plant* from 3 to 5 lines high. *Fruit-stalks* sometimes in pairs. *Veil* permanent, **SCOP**.—nearly as long as the capsule.

Moist banks, woods, and walls.

P. Jan.—May.

BRY'UM *tetrago'num*. Capsules nearly upright, some- *square*
what globular. Shoots 4-cornered, the younger between climbing and zigzag. Leaves pressed to, strap-awl-shaped. **DICKS.** ii. 8.

Dickf. 4. 9. a. b.

Full grown shoots upright, with leaves disposed in 4 rows, blackish, yellowish green above, sometimes sending out young shoots from the ends; *young shoots* zigzag like a climbing plant, reddish. *Leaves* of the full grown shoots very closely tiled, pressed to, upright, strap-shaped, awl-shaped towards the ends; those of the young shoots minute egg-shaped, few. *Capsules* upright, somewhat oblique, mouth contracted. *Fringe* with a ring. **DICKS.**

Ben Lomond, Scotland.

BRY'UM *tortuo'sum*. Capsules upright. Leaves *twisted*
bristle-shaped, without hairs, curled when dry.—

Dill. 48. 40.—*Hall. enum.* 4. 2, at p. 118, repr. in *hist.* 45. 2, at

ii. p. 41.—*Fl. dan.* 880. 1.—*Scheuch. it.* ii. 19. 5, cop. in *Pet. gaz.* 65. 8.

Leaves when dry curled and becoming dark coloured. **LINN.** *succ.* n. 1000.—*Fruit-stalks* terminating on the young, lateral on the old shoots. **NECK**.—Grows in dense crisp patches. *Shoots* upright, adhering together, near an inch high. *Leaves* a line or 1½ line long. *Fruit-stalks* from the forks of the branches, straight, 3 to 7 lines long, closely clasped at the base by the empatement. *Capsules* cylindrical, smooth. *Ring* none. *Mouth* fringed. *Lid* awl-shaped, straight. *Veil* smooth, extending but half way down. **POLLICH.**—One to 1½ inch high, somewhat branched. *Leaves* very numerous, slender, crooked, curled when dry, fine green, dull yellow when old. *Veil*

slender, pale green, changing to brown. *Capsules* nut-colour when ripe. DILL.

Heaths, rocks on mountains, and woods.

bog BRY'UM *tricho'des*. *Capsules* nearly upright, the mouth fringed; without a ring. Fruit-stalk very long. LINN.—Leaves strap-tongue-shaped, blunt. Capsule pear-shaped, crooked. DICKS. ii. 7.

Hedwig. stirp. i. 1 and 2; hist. ii. 9. 56. 57.—Dill. 49. 58.

Shoots on very short stems. *Fruit-stalks* 3 inches long. *Capsules* dull yellow, inversely egg-shaped. *Lid* blunt. Growing in patches. *Leaves* scattered, 2 lines or more in length. *Empal.* none. *Fruit-stalks* terminating. *Capsules* upright, afterwards bending a little, 1 line long. *Lid* short, pointed, white. *Veil* smooth, reaching but half way down. POLLICH.—Primary stem not branched, but after bearing fruit it sends out a new shoot from its extremity, as is the case with many Mosses with terminating fruit-stalks. Chives and pointals in the same flower, or in separate flowers. *Ring* none. *Fringe* double, 16 teeth in each. The roots are so closely attached together, that without great care it breaks off, and the plant appears without a stem; HEDWIG.—short, sitting, sometimes undivided, sometimes with 1 or 2 branches. *Leaves* green, narrow. *Fruit-stalks* about 2 inches high, of a shining gold colour. DILL.

Wet meadows, in dense patches.

May, June. P.

brown BRY'UM *truncat'ulum*. *Capsules* upright, roundish. *Lid* ending in a sharp point.—

Curt. ii. 22. 2.—Hedw. stirp. 5; theor. 9. 15.—Dill. 45. 7.—Vaill. 26. 2.—Buxb. ii. 2. 2.—Fl. dan. 537, bad.

Capsules, when the lid is fallen off, appearing quite lopped, inversely egg-shaped, and yellowish red, therefore evidently distinct from the *B. viridulum*. LINN.—*Fruit-stalks* 3 or 4 lines long. Capsule without a ring. NECK.—One of the least of the Mosses; grows in patches. *Stem* 3 or 4 lines long, unbranched, ending in roses. *Leaves* terminated by a minute white hair. *Fruit-stalks* terminating, generally solitary. *Capsules* egg-shaped. *Lid* with a long slender point. *Veil* with a long taper point. WEIS.—*Sheathing empalement* conical, lopped. HEDWIG.

Ditch banks, meadows, pastures, and heaths. A. Sept.—Feb.

Hasselquist observing this plant growing in great abundance upon the walls of Jerusalem, conjectures it may be the Hyssop of the scripture, wherein Solomon is said to have known all plants, from the Cedar of Lebanon even unto the Hyssop, that groweth upon the wall.

BRY'UM

BRY'UM undula'tum. Capsules nearly upright. *curled*
Fruit-stalks mostly solitary. Leaves spear-shaped; keeled;
waved; expanding; ferrated.—

Curt. i. 6.—*Hedw. stirp.* i. 16.—*Dill.* 46. 18.—*Vaill.* 26. 17.—*H.*
ox. xv. 7, row 1st, 9.—*Hedw. stirp.* 17, is variety β , but equally
well represents the parts of fructification of the plant in question.
—(*Fl. dan.* 477, seems to be β of Hedwig.)

Shoots rarely branched. *Fruit-stalks* 1 or 2 from the end of each
shoot. **NECK.**—*Stem* 1 to 3 inches, upright, unbranched. *Leaves*,
the upper ones largest, viz. 2 or 3 lines long, and 1 broad. *Fruit-*
stalks terminating, upright, 1 to 2 inches high; sometimes 2 toge-
ther. *Capsules* oblong, leaning, bent. *Lid* sharp-pointed, marked
with a scarlet circle. **WEIS.**—*Sheathing* empal. pyramidal, its top
closely embracing the fruit-stalk. *Veil* cylindrical, splitting on one
side. *Capsules* cylindrical. *Lid* convex; beak very long. *Fringe*
of 32 teeth; single. **HEDWIG.**—*Stem* in part buried in the ground.
Leaves deep green, thin, pellucid, very finely ferrated, soon curl-
ing up when the plant is gathered. **DILL.**

Shady banks, woods about the roots of trees, and heaths.

Aug.—Febr. P.

BRY'UM unguicula'tum. LINN.—Capsules upright, *birds-claw*
oblong. *Lid* taper-pointed, oblique. Leaves strap-
spear-shaped, keeled. **Huds.**

Hedw. stirp. i. 23, *hist.* ii. 4. 20, a *lid.*—*Dill.* 48. 47.—*Buxb.* ii.
2. 9.

Shoots forming patches, about $\frac{1}{2}$ an inch high; sometimes
branched.—*Leaves* open, near a line in length and $\frac{1}{4}$ in breadth.
Fruit-stalks terminating. *Capsule*, ring none. *Veil* smooth, reaching
but half way down the capsule. **POLLICH.**—*Leaves* expanding when
moist, twisted when dry. *Bare* and *fertile* flowers on separate
shoots, terminating. *Sheathing* Empal. conical. *Fruit-stalks* 1 or 2
together, about $\frac{1}{2}$ an inch long, upright. *Ring* none. *Fringe* scat-
tered when dry, spirally twisted together when wet. **HEDWIG.**—
Leaves green, keeled, opaque. *Capsules* oblong, thickest at the base,
green, changing to brown. **DILL.**

Walls and sandy places. [Bungay, Suffolk. Mr. STONE.] Clay
walls. **HEDW.** A. March, April,

BRY'UM verticilla'tum. Capsules upright. *Fruit- whorled*
stalks twisted when dry. Leaves ending in hairs. Shoots
all of the same height.—

Dill. 47. 35.

Grows in dense tufts. *Stems* slender, adhering closely together, about an inch high; branched. *Leaves* hair-like, fine pale green, towards the bottom of the plant whitish. *Fruit-stalks* numerous, short, pale, terminating. *Capsules* small, roundish, greenish. *Lid* very small, red, pointed. DILL.

Haller unites it with the *B. æstivum*. LINN.

In Yorkshire. RICHARDSON in Dill. On rocks near the sea, Bangor. BREWER in Dill. P. April—August.

greenish BRY'UM *vi'rens*. Capsules upright, oblong, Leaves awl-shaped, quite straight. DICKS. 4.

Curt. ii. 22.—Hedw. stirp. 3. 5.—Dill. 48. 43.—Vaill. 29. 5.

Leaves curling up in drying. DICKS.—So small as hardly to be discernible if it did not grow in large patches. *Stems* 1 to 3 lines long, upright, seldom branched. *Leaves* very slender, sharp at the ends. *Fruit-stalks* terminating the last year's shoots, 1 or 2 on a shoot. *Capsules* egg-shaped, fringed at the mouth. *Lid* red, pointed. *Veil* pointed. WEIS.—*Fruit-stalks* green, changing to a pale yellow. *Capsules* from green to yellow brown, and shining. *Veil* slender, the colour of the capsule. *Lid* very short, reddish, its point bent. DILL.

B. viridulum. Hudf. 478. Lighf. 731. Curt.

Meadows, ditch banks, and road sides.

A. Dec.—March.

green BRY'UM *virid'ulum*. Capsules upright, egg-shaped. Leaves spear-shaped, taper-pointed, between tiled and open. LINN.—Stemless. Capsules oblong. Lids taper-pointed, resembling a bird's claw. DICKS. 3.

Dichf. 1. 5.

Leaves very green, curling up in drying. LINN.—Whole plant scarcely more than the 8th of an inch high, the smallest of this Genus which I have hitherto seen. *Leaves* 3 or 4, when viewed through a magnifying glass strap-spear-shaped, ribbed underneath. *Fruit-stalk* yellowish, sometimes 2 from the same point. *Capsule* upright, oblong, somewhat cylindrical, brownish when ripe, with a swollen red ring. *Lid* taper-pointed, somewhat crooked, nearly as long as the capsule. *Veil* oblique, minute. *Fringe* toothed; teeth numerous, bent in. Differs from *B. paludosum* in the leaves not being bristle-shaped, and in the shape of the capsule. DICKS.

B. viridulum. LINN.—That it is so I am satisfied from specimens in the Linnæan herbarium. But all modern authors misled by the erroneous synonyms given by Linnæus have supposed another species to be the Linnæan *viridulum*. [See *B. vi'rens*.] DICKS.

Boggy ground on Enfield Chace.

June.

BRY'UM

BRY'UM *Weisia*. Capsules upright, oblong, egg-shaped, with a ring, fringed. Leaves pointing one way, strap-awl-shaped, stiff. Dicks. ii. 5.

Hedw. i. 8.

Stem upright. *Leaves* awl-shaped, but broad and sheathing at the base, rigid, not curling up when dry. *Empal.* sheathing. *Fruit-stalk* terminating, always longer than the stem, nearly upright. *Veil* slender, upright. *Lid* a blunt cone. *Fringe* single, of 16 teeth. *HEDWIG.*

Woods and sandy places.

May, June.

*** *Capsules on Fruit-stalks; pendant.*

BRY'UM *alpinum*. HUDS. and LINN.—Capsules *alpine* pendant, oblong. Leaves tiled, egg-shaped, pointed, keeled. Shoots branched. Fruitstalks from the division of the branches. HUDS.

Dill. 50. 64.

Grows densely compacted; variously branched; branches irregular in length. *Leaves* very numerous, oblong, keeled, straight, spit-pointed, opaque, smooth, shining, purplish green, but in old plants dark purple below, dark red above. Barren branches taper at the end, those with fruit-stalks broader. *Fruit-stalks* an inch high, dark red purple, issuing from a large purple tubercle. *Veil* purplish. *DILL.*

Rocks covered with a thin layer of earth in the ruins of an old castle near Llanberis. *DILL.*—Highland mountains. *LIGHTF. ST.*

P. April—June.

BRY'UM *argenteum*. Capsules pendant. Shoots *silver* cylindrical, tiled, smooth.—

Dill. 50. 62.—*Curt.* iii. 28.—*Fl. dan.* 880. 2.—*Vaill.* 26. 3.—*H. ox.* xv. 6. *row the last,* 17.

Grows in patches, about $\frac{1}{2}$ an inch high, dividing into cylindrical shoots 2 or 3 lines long. *Leaves* egg-spear-shaped, ending in hairs, but so pressed to the stem as hardly to be discernible to the naked eye. *Fruit-stalks* from the base of the shoots, near $\frac{1}{2}$ an inch high. *Capsules* egg-shaped, upright when green, pendant when ripe. *Lid* short, blunt. *Mouth* fringed. *Veil* deciduous. *WEIS.*—In autumn and early in winter green, afterwards shining silvery white, especially when dry, which circumstance alone is sufficient to distinguish it from all other Mosses. *DILL.*

Sunny banks, walls, roofs, and rocks.

P. Oct.—Feb.

♂ *LINN.*—Shoots greener. Leaves not hairy.

Dill. 50. 63.

Pale or darker green, sometimes shining. *Leaves* more crowded than in α , not hairy. *Capsule*, mouth not fringed. DILL.

On the gravel walks of the Oxford Physic Garden. DILL.

Jan.—March.

matted BRY'UM *cæspiticium*. Capsules pendant. *Leaves* spear-shaped, tapering to a bristly point. *Fruit-stalks* very long.—

Hedw. hist. ii. 10. 66, 67. 3. 12.—*Curt.* iii. 28.—*Dill.* 50. 66.

—*H. ox.* xv. 6. row 5. 15.—*Vaill.* 29. 7.

Fruit-stalks red at bottom, yellow green at top. REYG.—*Shoots* crowded. *Leaves* pellucid. *Capsule*, mouth fringed. NECK.—Grows in broad dense patches. Only a few lines high; branched at the top, covered with a brown knap at bottom. *Leaves* very small, crowded, shining. *Fruit-stalks* an inch high, issuing from the roses of last year's shoots, surrounded at bottom with a leafy sheath or fence. *Capsule* at first upright; slender egg-shaped. *Lid* red, shining, nipple-shaped. *Mouth* slightly fringed. *Veil* brown, changing to tawney red. WEIS.

Old walls, stones, roofs, grass, gravel, banks, and hillocks.

P. Feb.—April.

shining BRY'UM *carneum*. Capsules pendant; somewhat globular. *Leaves* pointed, alternate.—

Hedwig. stirp. i. 20.—*Dill.* 50. 69.—*Buxb.* ii. 2. 5 and 6.

—*Hall. enum.* 4. 6, at p. 113, repr. in *hist.* 45. 6, at iii. p. 41.

Shoots upright, single, or in tufts, dividing into several branches 4 or 5 lines long. *Leaves* $\frac{1}{2}$ or 1 line long, $\frac{1}{2}$ broad, not hairy at the end, very entire. *Fruit-stalk* terminating the shoots and the branches, 3 or 4 lines long. *Capsules* roundish, egg-shaped. *Ring* none. *Lid* short, bluntish. *Veil* smooth, reaching but half way down. POLLICH.

Moist watery places and pastures. [Wet drains near the bath, Ditchingham, Norfolk. Mr. STONE.]

Summer. DILL.—March, April. HUNDS.

β HUNDS.—Capsules green. Branches and fruit-stalks longer. *R. syn.* p. 102. n. 52.

Dill. 50. 69. G.

Yorkshire. Mr. RICHARDSON.

giganti: BRY'UM *cutitale*. Capsules pendant, club-shaped, oblong. Shoots and fruit-stalks bent inwards. *Leaves* arrow-shaped, pointed, bordered. DICKS. ii. 9.

Dicks. 5. 2.

The largest of all the Bryums. *Shoots* somewhat branched, rather recumbent at the base. *Leaves* expanding, taper-pointed, with a thick rib and reddish edge. *Fruit-stalk* terminating, very long, a little below the base bent in with an elbow-like bending, of a gold coloured reddish brown, brightly glittering. *Capsule* depressed and pendant, club-shaped, very long. *Fringe*, teeth numerous, upright. DICKS.

On moist banks in the Scotch mountains, near Aberfeldy.

BRY'UM *elonga'tum*. Capsules between slanting and *elongated* upright, lengthened out at the base. Leaves strap-spear-shaped. DICKS. ii. 8.

Hedw. stirp. i. 36.

Hardly $\frac{1}{2}$ an inch high, upright. Barren and fertile flowers terminating, but on different plants. *Fruit-stalk* straight, upright, but a little bent at the top by the weight of the capsule. *Capsule* oblong, leaning, its lower part a cellular substance, not containing seeds. *Lid* convex, beak short. *Mouth* with a double fringe, 16 teeth in each. HEDWIG,

Woods near Loch Nefs, Scotland.

May.

BRY'UM *margina'tum*. Capsules nodding. *Lid* *bordered* beaked. Leaves egg-spear-shaped, pointed, finely toothed, bordered. DICKS. ii. 9.

Dicks. 5. 1. a. b.

Shoots mostly simple. *Leaves*, teeth remote, the midrib and edge red and thick. *Fruit-stalks* solitary. *Caps.* half egg-shaped. *Lid* conical. *Veil* awl-shaped. DICKS.

Pastures, Scotland.

BRY'UM *pulvina'tum*. Capsules roundish. *Fruit-* *pincushion* stalks bent down. Leaves ending in hairs.—

Hedw. theor. 13. 51 to 56, 14, 57 to 62.—*Dill.* 50. 65, *cop.* with the capsule magnified in *Happ.* iii. *Bryum* 1.—*Vaill.* 29. 2.—*Pet. gaz.* 95. 15.—*H. ox.* xv. 6, *row the last*, 21. p. 629.

Grows in a tuft or round cushion. *Fruit-stalks* green, short, bowed back, so that the capsule presses upon the leaves. *Caps.* egg-shaped. *Veil* very thin, very short, barely covering the lid. *Lid* taper-pointed. LINN. *fl. succ. n.* 993, under *B. murale*. *Fruit-stalks* bending down so that the capsules are buried in the foliage; but in some stages of growth they are upright. NECK.—Grows in circular convex dense patches, about $\frac{1}{2}$ inch high. *Shoots* branched, branches thickest upwards. *Leaves*, the lower ones brown and without hairs. *Fruit-stalks* terminating, very short, at first upright, but as the capsule

CRYPTOGAMIA.

capsule ripens bending down. *Mouth* toothed. *Veil* deciduous. *Lid* short, pointed. WEIS.

Walls and roofs, the most common of all the Mosses.

March—April.

bowed B R Y ' U M *recurva'tum*. Capsules roundish, pendant. Leaves bristle-shaped. DICKS. ii. 7.

Hedw. i. 38.—*Jacq. Misc.* ii. 12.

Original stem hardly $\frac{1}{2}$ a line in height; very brittle when dry. *Leaves* expanding, lower ones spear-shaped. *Barren* flowers in the bosom of the leaves. *Fruit-stalks* terminating, at first straight, then arching downwards, becoming straighter again when old and dry. *Capsule* pear-shaped. *Lid* convex, beak slender, crooked. *Fringe* single, with 16 teeth. *Veil* splitting at the side, bent like the beak of the lid. HEDWIG.

Barren grassy places. Calcareous rocks. Spring—Autumn.

filky B R Y ' U M *seric'eum*. Capsules pendant, oblong. Leaves spear-shaped, pointed, keeled. HUDS. 487.

Hedw. hist. i. 4. 16 to 19; ii. 6. 28, a seedling plant.—*Dill.* 50. 61.—*Hedw. stirp.* i. 4.

About $\frac{1}{2}$ an inch high. *Chives* and *pointals* in the same flower. *Fruit-stalk* from 1 to 2 inches high. *Capsules* pendant, but after discharging their seeds upright. *Lid* convex, beak very short. *Mouth*, fringe double, each of 16 teeth. HEDWIG.—*Stems* short. Lower leaves few, shrivelled, brown. Upper leaves fine pale green. Plants without capsules taller. DILL.

Woolwich Heath, and Snowdon, about Llanberris; on Ingleborough, and in other places in Yorkshire. P. March—July.

simple B R Y ' U M *simp'plex*. Capsules nodding, oblong. Leaves awl-shaped. Stem undivided. *Fruit-stalk* from the middle of the stem.—

Hedw. stirp. ii. 34.—*Dill.* 50. 59.—*H. ox.* xv. 7, row 2. 19. —*Buxb.* iv. 65. 2.

Shoots $\frac{1}{2}$ an inch long. *Fruit-stalks* coloured, standing on the ends of the young shoots, but on the rib of the old ones. NECK.—Not branched, often 1 inch long, growing in patches. *Leaves* crowded at the ends of the stem, hair-like, not crisp when dry. *Fruit-stalks* 1 or 2 together, 8 or 9 lines long. *Capsule* inversely egg-shaped. POLLICH.—*Lid* rather broader than the capsule, beaked. *Mouth* elegantly toothed, DILL.—with 16 teeth in a single row, purplish. HEDWIG.

B. rubrum. Hudf. ed. i. 413.

Graffy sandy places.

A. March—May.—P. HEDWIG.

BRY'UM *ventricosum*. Capsules pendant, bellying, *bellying* oblong. Leaves pointing 3 ways, expanding, awl-spear-shaped, keeled. Shoots branching. DICKS. 4.

Hedw. hist. ii. 4. 21, the ring; 16, the lid.—*Dill.* 51. 72.—*Vaill.*

24. 2 and 2.—*H. ox.* xv. 6, row 5. 20, from a dried specimen.

Capsule, the neck downwards becomes gradually narrower. DICKS.—*Stems* simple or branched; branches sometimes very slender, at others thicker and shorter; thickest where the fruit-stalks put forth, the leaves there expanding in the form of stars. *Fruit-stalks* near 2 inches long, purple. *Capsules* bent downwards, bellying, green. *Lid* small, shining white. *Veil* short, brown red. DILL.

Bryum triquetrum. Hudf.—*Mnium triquetrum* according to Lightf. 715, Hudf. and Relh. n. 786, but in the specimens of *Mnium triquetrum* in the Linnæan herbarium and Ehrhart's phytophyllacium the capsules are upright slanting. DICKS.—*Leaves* spear-shaped, alternate. *Fruit-stalks* red, sometimes branched. *Leaves* pellucid, green, shining. When about to flower it sends forth some reddish shoots, with finer leaves encompassed by others of a paler green. Flowers in the summer. DILL.

Turf bogs and marshy places. [Turf pits, Ellingham Fence, Norfolk. Mr. STONE.] March—May.

♂ *Dill.* 51. 73.

Bryum triquetrum ♂ Hudf. 490.

In marshy places. The red kind is found in the mountain torrents of Snowdon, and the green in high boggy heaths about London and Oxford. DILL. Summer.

γ Shoots prolificous.

Dill. 51. 74.

Shorter than the preceding. *Capsules* pear-shaped, i. e. largest at the end. *Leaves* deeply keeled, closing together when dry, very much crowded and compressed. Stem and leaves at the bottom black. *Lids* very short and blunt. DILL.

Mnium triquetrum γ Hudf. 491.

Marshy places. On Shooter's Hill near Eltham, and in Wales.

Spring and Summer. DILL.

BRY'UM *Zie'rrii*. Capsules'pendant, club-shaped, *Zier's* long. Shoots cylindrical. Root-leaves expanding, longer than the stem-leaves. DICKS. ii. 8.

Dicks. 4. 10, the capsules represented as terminating.

Shoots

C R Y P T O G A M I A.

Shoots simple, upright, pointed, of a flesh-coloured whitish hue, green towards the end. *Leaves* closely tiled, pressed to, egg-shaped, pointed, ribless, transparent, the ends when dry reclining. *Root-leaves* surrounding the shoots, expanding, spear-strap-shaped, with a rib, taper-pointed, thrice as long as the rest. *Fruit-stalk* from the base of the plant, thrice as long as the shoots. *Capsule* depressed-pendant, when moist rather upright, on a crooked fruit-stalk, in the dry plant club-shaped, very much elongated and tapering at the base, the surface somewhat granulated. *Fringe* with many teeth. *Lid* short pyramidal. *Veil* not observed. DICKS.

Moist banks in the Highlands. Near Aberfeldy. [Crib y Ddefcil, Caernarvonshire. October. Mr. GRIFFITH.]

1312. H Y P'N U M. Feathermoss.

Ess. CHAR. *Capsule* with a lid. *Veil* smooth. *Fruit-stalk* from the sides of the stem or branches, surrounded by an *Empalement* at the base.

* *Leaves* winged.

upright H Y P'N U M *adiantoides*. Plant winged; branched; upright. *Fruit-stalks* from the middle of the branches.—

Dill. 34. 3.—Vaill. 23. 5.—Buxb. ii. 1. 4.

Two or three inches long, straight; wings 12 to 16 pair. *Fruit-stalks* 1 inch high. *NECK*.—Branched from the base. *Leaves* not pointed. *Capsules* leaning. *Lid* red. *Veil* as long as the capsule. *SCOP*.—In this species, as well as in the *H. taxifolium* and *bryoides*, the leaflets are folded together lengthways, but not quite to the end. In this and the *H. taxifolium*, the leaflets are serrated at the ends, but in the *H. bryoides* taper-pointed and very entire. *LEERS*.—Upright, branched. *Leaves* shining. *Fruit-stalks* red, lateral. *Capsules* brownish, turning red. *Lid* scarlet, pointed. DILL.

Bogs, moist heaths and moors.

P. March—April.

spleenwort H Y P'N U M *asplenoides*. SWARTZ.—Plant winged, mostly simple, strap-shaped. *Fruit-stalks* terminating. *Capsules* somewhat bowed in, toothed. DICKS. ii. 10.

Dicks. 5. 5.

Habit that of *H. adiantoides*, but smaller, and the fruit-stalk always terminating. *Leaves* tiled at the base, almost embracing the stem, spear-shaped, bluntnish, somewhat keeled, the mid-rib reddish, sometimes

times rolled in at the ends. *Lid*, the beak oblique, white, as long as the capsule. *Dicks*.

Bogs in the Highlands, near Ben Lomond.

HYP'NUM *bryoides*. Plant not branched; shoots fern-leaved spear-shaped, winged. Fruit-stalks terminating.—

Hedw. theor. 11. 36 to 41.—*Dill.* 34. 1.—*Vaill.* 24. 13.—*Fl. dan.*

473. 1.—*H. ox.* xv. 6. row 4. 11.—*Buxb.* i. 64. 3.

Very small, but distinguished by its *Capsules* edged at the mouth, with a deep red fringe. *LINN.*—The smallest of the Genus. *Shoots* 2 or 3 lines long. *Leaflets* 7 or 8 pair. *Fruit-stalks* as long, or longer than the shoots, generally solitary. *Capsules* upright, egg-shaped. *WEIS.*—Many growing together as if from one root, but each plant has its separate root, though sometimes 2 or 3 shoots spring from one root. *Shoots* not branched, short, reclining. *Leaves* green, not pellucid. *Capsules* small, upright, oblong, green. *Veil* very small, greenish. *Lid* scarlet. *Fruit-stalks* reddish, issuing from near the end of the shoots, and without any evident *Empal.* *DILL.*

Shady places, woods, and ditch banks.

A. Feb.—May.

HYP'NUM *complanatum*. Plant winged; branched; flat leaflets tiled; pointed; folded; compressed.—

Hedw. hyst. ii. 10. 62.—*Dill.* 34. 7.—*Vaill.* 23. 4; and 21. 17.—

H. ox. xv. 5. row 2. 5; and row 3. 15.—(*Fl. dan.* 706. 1, in the *Index* at the end of fasc. xiii. p. 5, is an error.)

Leaflets smaller towards the ends of the shoots. *Fruit-stalks* from the base. *Capsule* oval, upright. *NECK.*—*Fruit-stalks* 10 to 12 lines long. *Capsules* leaning; mouth fringed. *NECK.*—Forming broad leafy strata on the trunks of trees. Plant from 1 to 3 or 4 inches long, creeping. *Leaflets* alternate, in 2 rows, in the young shoots very closely crowded. *Fruit-stalks* $\frac{1}{2}$ an inch high, numerous on the mid-rib, or from the forks of the branches. *Fence* large, hairy. *Capsules* egg-shaped. *Lid* conical, beaked. *Veil* bent. *WEIS.*—*Shoots* very much branched, flattened. *Branches* slender, thread-shaped. *WEBER.*—Two or three inches long. *Branches* opposite or alternate. *Leaves* soft, pellucid, yellow green, shining. *Empal.* scaly, *Veil* slender, whitish, crooked. *DILL.*

Trunks of trees.

P. March, April.

♂ *Huds.*—Branched and shining.—*Branches* bent at the ends. *With.*

Dill. 34. 3.

Adheres

Adheres less closely than the preceding, the branches convex above, concave underneath, less compressed, shorter, blunter, more bent at the ends. DILL.

On trees, and also on the ground.

Feb.

double-rowed. HYP'NUM *denticulat'um*. Plant simple, winged; with a double row of leaflets on each side. Fruit-stalks from the base of the leaf.—

Dill. 34. 5.—H. ox. xv. 6. row 1. 36.—Vaill. 29. 8.

Plant trailing; from 1 to 2 inches long. Caps. mouth fringed. NECK.—Points of the leaflets bent back. WITH.—Leaflets triangular egg-shaped, hooked. WEBER.—Shoots several, lying on the ground, $\frac{1}{2}$ to $1\frac{1}{2}$ inch long, seldom branched. Leaves in a double row on each side, soft, pellucid, shining, pale green, pointed and bent back towards the end.—Fruit-stalks from the base of the shoots, reddish, an inch or more in length. Capsules oblong, straight, covered by the veil, which is of a straw colour; becoming bent as it approaches to maturity. Lid short. DILL.

Woods, and moist shady places on the ground, and on trunks of trees.

P. March, April.

wood. HYP'NUM *sylvat'icum*. Plant winged; branched; trailing. Leaflets pointed. Fruit-stalks from the middle of the leaf.—

Dill. 34. 6.

Shoots branched. Branches undivided, few, not shining. Fruit-stalks lateral. Lids of the capsule pointed. DILL.

Woods at the roots of trees. [Riveston Wood near Edinburgh. Dr. J. E. SMITH.—Near Bungay, Suffolk. Mr. STONE.]

P. April, May.

yew-leaved. HYP'NUM *taxifo'lium*. Plant not branched; shoots spear-shaped, winged. Fruit-stalks from the base of the shoots.—

Dill. 34. 2.—Vaill. 24. 11.—Fl. dan. 473. 2.

Fruit-stalks 8 or 10 lines high. Caps. lid very red. NECK.—Leaflets about 12 pair on each shoot, when young; more in the older shoots. Fruit-stalks $\frac{1}{2}$ an inch high, fenced at the base. Capsules near cylindrical, nodding, broadest at the mouth. Mouth toothed. Lid beak long. Veil turned up at the end. WEIS.—Leaves spear-shaped, with a point at the end. WEBER.—Shoots several from one root, not branched; dark green. Empal. at the base of the shoots, composed of a few scales. Lid scarlet, beak pointed, crooked. Veil pale. DILL.

Woods, hedges, and shady banks.

Feb.—May.

** Shoots

*** Shoots irregular, straggling.*

HYP'NUM *albicans*. Shoots nearly upright, slender, *whitish* somewhat branched. Leaves spear-bristle-shaped, laid-to. DICKS. 6.

Dill. 42. 63.

Shoots about 2 inches long, scattered, almost upright, but little branched, yellowish green mixed with white. *Leaves* spear-shaped, bristly at the end, everywhere surrounding the stem. *Fruit-stalks* lateral, $\frac{1}{2}$ inch high, upright, red; but rarely found. *Capsules* small, oval, oblique, rather nodding; yellow red. *Lid* short. *Mouth* fringed. DICKS.—Scarcely upright, not crowded together, a little branched, shoots slender, yellowish pale green. *Leaves* slender, pressed to, soft, shining. *Empalement* hairy. DILL.

In loose sandy soil on heaths, and places thinly clothed with grass, but seldom with capsules. DILL. 329.—[Bungay Common, Suffolk. Mr. CROWE. Mr. STONE.] May.

HYP'NUM *chryso'comum*. Shoots upright, branched. *yellow* Leaves oblong-spear-shaped, pointed, with many ribs; open and rather bowed back. DICKS. ii. 12.

Dill. 39. 36.

Shoots thick, hairy, woolly on the lower and middle part. *Leaves* crowded, bent back, dull green. I have not seen it in fruit. DILL.—The fuscous woolly matter which surrounds the shoot is a constant attendant. *Fruit-stalks* at the base of the branches, golden red, hardly $\frac{1}{2}$ inch long, crooked. *Capsule* golden yellow, globular. Mr. BRADBURY.

In bogs in the northern parts of Yorkshire, and in moist places on Glyder Mountain. DILL.—Boggy places in Scotland. DICKS. [On bogs with the *Mnium pahlstre* in Greenfield, Saddleworth, Yorkshire, and Stayley, Cheshire. Nov. Mr. BRADBURY.]

HYP'NUM *crispum*. Shoots branched; branches *curled* somewhat winged. Leaflets waved; flat.—

Dill. 36. 12.—Hedw. hist. ii. 8. 47.—Hall. enum. 3. 5, at p. 109, repr. in hist. 46. 5, at iii. p. 56.—Happ. ii. Hypn. 5.—H. ex. xv. 5. row 3. 10, p. 625.

The most elegant of the Genus. Grows in dense broad strata. Shoots a span long, flat, a little raised. Leaflets closely tiled, alternate, in 2 rows, spear-shaped, blunt, shining, wrinkled. *Fruit-stalks* $\frac{1}{2}$ inch long, lateral. *Fence*, leaves paler. *Capsules* nearly upright, egg-shaped. *Lid* with a long beak. *Veil* long. WEIS.—From 2 to 12 inches long, crowded and lying one upon another, branches compressed, blunt, undivided, alternate or in pairs. *Leaves* crisp, trans-

transversely waved. The whole plant is pale green in winter, yellowish in summer. DILL.

On chalk hills near Gravesend, and on the banks of the Thames out of the tide's way, on St. Vincent's rocks, and on the Welsh mountains. [About Kirkby Lonsdale, Westmoreland. Dr. J. E. SMITH.]

P. March, April.

rambling HYP'NUM *flagella're*. Shoots prostrate, below lengthened out, very slender, naked, above curved, star-like. Leaves bent back. Capsules fringed, somewhat cylindrical. DICKS. ii. 12.

Dill. 39. 42.

Leaves small, smooth, not much pellucid, produces its capsules in September. DILL.

On stones near rivulets in the Highlands of Scotland.

floating HYP'NUM *fluitans*. Leaves spear-shaped, alternate, remote. LINN. *fuec. n.* 1034.

Dill. 38. 33.—Vaill. 33. 6.

Fruit-stalks very slender, rarely found in flower. NECK.—Fine, red, in some plants very long, in others scarcely an inch long. Capsules red, hooked, very short, fringed at the mouth. LINN.—Shoots 10 to 16 inches long. RELH. *n.* 1019.—Much branched. Shoots slender, a foot long or more, either upright or floating. Leaves narrow, alternate, those on the stem fewer and broader than those on the branches, soft, pellucid, yellow green. Capsules not hitherto found. DILL.

Stagnant waters. Marshy places in Ireland, in a ditch near the road from Oxford to Marston, ditches near Hackney, and elsewhere about London, and in a small pond in a pasture opposite Great Founders Close, Cambridge.

interwoven HYP'NUM *intricatum*. SCREB. *lips.* 99.—Shoots creeping, branched. Leaves spear-shaped, taper-pointed, open. Capsules pitcher-shaped, on crooked fruit-stalks. DICKS. ii. 10.

Vaill. 28. 2.

[Woods near Matlock. Dr. J. E. SMITH.]

shining HYP'NUM *lu'cens*. Branched. Branches somewhat winged. Leaflets dotted.—

Dill. 34. 10.—Hedw. *hijl. i.* 1. 4, 5, 6.

Trailing. Branches brittle, blunt. Leaves egg-shaped, pointed, flat, shining as if wet with dew. Fruit-stalks $1\frac{1}{2}$ inch long, lateral.

Capsules

Capsules nodding. SCOP.—Shoots tiled. *Leaves* egg-shaped, transparent, dotted. WEBER.—Shoots about 2 inches long, sometimes branched. *Leaves* large, thin, soft, pellucid, pale green; placed alternately in 2 or 3 rows. *Fruit-stalks* reddish. *Capsules* small for the size of the plant, egg-shaped, more or less nodding, dark brown. *Lid* spit-pointed. *Veil* straight, sharp, whitish. DILL.

Woods, wet ditches, wet shady marshy places. P. April—June.

HYP'NUM *lutescens*. Shoots straggling, trailing. *yellow*
Leaves awl-shaped. *Capsules* oblique. HUDS. ed. I. 421.
RELH. n. 1020.

Dill. 42. 60.

Leaves ending in a long hair. WEBER.—Differs from *H. sericeum* in the shoots being longer, more slender and limber; the branches more distant and less crooked, the fruit-stalks longer, the leaves and the empal. longer; the capsules rather shorter, and bent; the lid also bending. *Fruit-stalks* from the shoot as well as from the branches. DILL.

γ *H. sericeum*. Hudf. ed. II. 506.

Chalk Hills between Northfleet and Gravesend, and on trunks of trees near Woding and Beddington, Surry. HUDS.—Gogmagog Hills. RELH. P. Jan.—April.

HYP'NUM *medium*. Shoots creeping, branched. *middle*
Leaves broad, spear-shaped, pointed, tiled but open.
Capsules upright, cylindrical, fringed. DICKS. ii. 12.

Dill. 42. 65.

Crowded together. *Leaves* pressed to when dry. *Fruit-stalks* less than $\frac{1}{2}$ an inch in length. DILL.

The foot of trees in woods in Scotland.

HYP'NUM *prolixum*. Shoots branched, lengthened *long*
out, rather bare below. *Capsules* egg-shaped, fringed.
Fruit-stalks ascending, short. DICKS. ii. 13.

Dill. 38. 32; and 85. 20.

Shoots 12 inches or more in length, upright in stagnant, floating in running water, closely crowded, sending out a few short branches towards the ends. *Leaves* numerous, small, tiled, under ones the largest. *Empal.* a small bulb, composed of a few short scales. *Fruit-stalks* short. *Capsules* small. DILL.

Alpine rivulets in Scotland. On Ben Glow.

round leaved **HYP'NUM** *rotundifolium*. Scop. n. 1333.—Shoots creeping, branched. Leaves oval, expanding, in 2 rows. Capsules egg-shaped, toothed and fringed, on crooked fruit-stalks. Dicks. ii. 10.

Scop. 62. 1333, at ii. p. 321.

Shoots slender, hardly 1 inch long, not numerous, *Leaves* thinly set. *Capsules* reddish; mouth with 2 rows of fringe. *Lid* with a slender beak. *Veil* white, chaffy. Scop.

Woods at the roots of trees, Scotland, [and on walls. Scop.]

wrinkled **HYP'NUM** *rugosum*. Shoots scattered, rather upright. Leaves pointing one way, bowed back, wrinkled at the base.—

Dill. 37. 24.

Shoots rigid, brittle, dry; branches irregular, or winged, mostly bent at the ends. *Leaves* spear-shaped, narrow, sharply pointed, closely tiled. Pollich.—Shoots seldom more than 3 inches long, thick, lying on the ground, crowded together, irregularly branched. *Leaves* exceedingly crowded, dry, crisp, their points in one direction, yellow green, when old or dry quite yellow. The fruit-bearing plants grow a little distant from the others, and have a different appearance. They are thinner, more pointed; the leaves more uniform, and less yellow. *Empal.* open, scaly at the origin of the branches. *Fruit-stalks* $\frac{3}{4}$ of an inch high. *Capsules* cylindrical, straight, slender, red when ripe. Dill.

In bogs in Scotland. Near Loch Rannoch. Dicks.

toothed **HYP'NUM** *rutabulum*. Branches straggling; partly creeping. Leaves egg-shaped; sharp-pointed; tiled.—

Buxb. iv. 62. 2.—Fl. dan. 824. 2.—H. ox. xv. 6. row 5. 18.

—Vaill. 27. 8.—Dill. 38. 29, capsules the best, but the *shoots*, as

Haller remarks, are too round.—H. ox. xv. 6. 35.

Leaves pellucid.; *Capsule*, mouth fringed. Neck.—Resembling the *H. triquetrum*, but much shorter, not reddish, but yellowish; branches more upright and cylindrical. *Fruit-stalks* shorter, more numerous. *Capsules* nodding. *Mouth* fringed. Weis.—*Leaves* triangular, green, shining when dry, not keeled. *Capsules* dark brown, shining. Dill.

Woods and hedges, on the roots and trunks of trees, and shrubs: on the ground in barren places.

P. Sept.—Jan.

β Huds.—Upright, short. Leaves slender.

γ Marshy places. Dill. in R. syn. p. 83. n. 18.

γ Huds.—Branches crooked.; leaves expanding. *Lids* spit-pointed.

Dill.

Dill. 38. 30, not quite characteristic.—*Vaill.* 27. 1.—*Hedw. hist.* ii. 1.
1, a transverse section of the bulb of the fruit-stalk.—*H. ox.* xv. 5.
row 3. 8. p. 625.

Slender, creeping, matted together, irregularly branched. Leaves small, triangular, pale green. Fruit-stalks $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in length. Capsules swollen, short, nodding. Empal. slender, scales narrow, ending in hairs. DILL.

Woods and bushes, on the roots and trunks of trees. DILL.

P. Jan.

♂ HUDS.—Shoot creeping. Leaves keeled.

Dill. 38. 31.

Adhering to stones under water, in broad patches, 1 or 2 inches or more in length, according to the rapidity of the stream. Branches upright, cylindrical below, flat above. Leaves egg-spear-shaped, closely tiled, 2-rowed, and leaflets compacted upwards. Fruit-stalks on the stem between the shoots, and from the bosom of the leaves. Capsules short, thick, nodding. Lid beaked. Mouth, fringe long. WEIS.—Leaves deep dull green. Fruit-stalks $\frac{1}{2}$ an inch high. DILL.

In rivulets and waters in Yorkshire. DILL.

The shoots are often incrustated with calcareous earth, which in time it accumulates so as to form stones of 20 or 30 pounds weight. WEIS.

HYP'NUM *stellatum*. Shoots upright. Leaves starry egg-shaped, ending in long points, upright-open, coloured. SCHREB. *spic.* 92. n. 1061.

Dicks. 1. 7.—*Dill.* 39. 35.—*Vaill.* 28. 10.

Shoots somewhat branched, somewhat tawney at the base, yellowish at the end. Leaves spear-awl-shaped, the ends standing out. Fruit-stalks few, lateral, nearly an inch long, almost upright, red. Capsules egg-shaped, hunched, rather bowed in. Lid short, pointed, distinguishable at first sight from *H. cuspidatum*, by the leaves at the ends of the stems not being rolled in, but expanding. DICKS.

Turfy bogs. RELH. n. 1018. — [Low wet meadows in Earsham, near Bungay, Suffolk. Mr. STONE.]

HYP'NUM *triquetrum*. Branches straggling, bowed triangular back. Leaves egg-shaped, bowed back, open.—

Dill. 38. 28.—*Hedw. hist.* i. 7.—*Vaill.* 28. 9.—*Buxb.* iv. 63. 1.

Branches unequal. Leaves triangular, pointed. LINN.—Spreading to a foot in length, reddish, elastic, rising upwards. Leaflets ending in a sharp point. Fruit-stalks 1 or 2 inches high, rising out of a scaly fence in the angles of the branches; upright. Capsules leaning.

Mouth with a ring; fringed. *Veil* bent. WEIS.—Often grows upright. *Branches* frequently bent to the ground, their extremities taking root. *Leaves* broad, triangular, not keeled, tender, pellucid, pale green, pointed. *Empal.* rigid, oblong, composed of reflected scales, sometimes 2 or 3 together. *Fruit-stalks* seldom more than an inch high. *Capsules* upright, thin; when ripe thicker, leaning, crooked. DILL.

Woods about the roots of trees, and in dry barren pastures.

P. Sept.—Jan.

Used to pack glass and earthen ware. WEIS.

waved HYP'NUM *undulatum*. Shoots branched; branches somewhat winged. Leaflets waved and folded.—

Dill. 36. 11.—H. ox. xv. 6. 33.

Fruit-stalks from the base and the middle. *Leaflets* 2 rowed. NECK.—A span long, lying flat. *Leaflets* closely tiled, in a double or triple series; when dry pale green and silky. WEIS.—*Fruit-stalks* long, slender, reddish. *Veil* straw-coloured, with a brown spot at the end. *Capsules* oblong. *Lid* split-pointed. *Mouth* fringed. *Fence*, leaves narrow, short, bent back. DILL.—*Capsules* very crooked when ripe. WEBER.—Shoot not always branched; its rib yellowish. *Leaves* tender, pellucid, smooth, shining, pale green, not changing colour when dry. *Empal.* lateral, and in the angles of the branches, composed of short, narrow reflected scales. *Fruit-stalks* 1½ to 2 inches long. *Capsules* rust-coloured, crooked when ripe. *Lid* pointed. DILL.

Woods, shady places, and moist rocks. On the top of Snowdon. [Riveston Wood, near Edinburgh. Dr. J. E. SMITH.]

P. March—April.

*** Shoots winged.

fr HYP'NUM *abietinum*. Shoots winged; somewhat cylindrical, distant, unequal.—

Dill. 35. 17.—Vaill. 29. 12.—H. ox. xv. row 4. 22. p. 626. No parts of fructification in any of them.

Fruit-stalks from the middle of the rib of the shoot, single, purple, straight, as long as the shoot. *Veil* upright; awl-shaped; pale. *Capsule* yellowish red, more bowed back than in any of the rest: edge of the mouth entire, with a short open fringe within. LINN.—No specimen found in fruit, in French Flanders. NECK.—Shoots 2 to 4 inches long, elastic when fresh, brittle when dry. *Wings* limber, alternate below, opposite and shorter above. *Leaflets* egg-shaped, scored, ending in hairs, closely tiled. WEIS.—*Branches* straight. *Leaves* straight, which distinguishes it from the *H. filicinum*. SCOP.—Grows matted together, half upright, sometimes branched,

3 to 5 inches long. Side shoots awl-shaped, numerous, opposite, surrounded on every side by small dull yellow green leaves. No fructification yet found. DILL.

Mountainous places. On hills near Hinksey, Oxfordshire. DILL.
—In dry shady places, and on Chalk hills about Northfleet.

P. March.

HYP'NUM *Crista-castrensis*. Shoots winged. Little *crested* branches near together; bowed back at the ends.—

Vaill. 27. 14.—Dill. 36. 20.—H. ox. xv. 5. 12, if the plant, is a bad representation of it.

It very much resembles an ostrich feather from its shining parallel rays, by which, and by its silky hue, it is readily distinguishable. *Fructifications* seldom to be met with. LINN.—Shoots yellow green, or dirty white. *Fruit-stalks* $\frac{1}{2}$ inch to inch long; from the base of the branches. NECK.—Grows in broad patches, reclining, flat, one plant over another. *Leaflets* hooked, very sharp. *Branches* triangular, the ends bent back. WEIS.—*Branches* crowded, ends reflected. *Leaves* numerous, bent back, yellowish green; downy, crisp. DILL.

Chalk hills, rocks, about the roots in dry woods and stony soils.
[Bungay, Suffolk. Mr. STONE.] P. March, April.

HYP'NUM *filicinum*. Shoots winged; little *bog* branches distant; *Leaflets* tiled, bowed inwards; sharp, pointing one way.

Vaill. 29. 9.—Dill. 36. 19.—Vaill. 23. 12, is considered by Dill. as a variety of it, but it has rather the appearance of a different species.

Fertile shoots trailing, the barren ones upright. *Fruit-stalks* 1 or 2 inches long; from the bosom of the branches; coloured. NECK.—Shoots from 3 to 6 inches, undivided, winged. *Wings* leafy. *Fruit-stalks* from the middle of the shoots, one or more in a place. *Fence* hairy. *Capsules* leaning. *Lid* conical, short, blunt. WEIS.—Sometimes branched; always sending out numerous lateral shoots, which are shorter as they grow nearer to the end of the stem. *Leaves* very numerous, pleasant green, narrow, bent back. DILL.

Marshy places, and near springs. [Bungay, Suffolk. Mr. STONE.]

P. March. HUDS.—Summer. DILL.

β HUDS. 498. Smaller; yellow green.

Dill. 36. 21.

Leaves yellow green, smooth, narrow, spit-pointed, upper ones straight, lower ones mostly bent back. *Fruit-stalks* often twisted and variously bent, reddish, $1\frac{1}{2}$ inch long. *Empal.* pyramidal, scaly and hairy. DILL.

Wet heaths and other marshy places.

Early in the spring.

shining HYP'NUM *ni'tens*. Branches very short. Leaves spear-awl-shaped; shining. LINN. the Son.

Dill. 39. 37.—Vaill. 27. 11, is thought by Dillenius to be the plant.

Shoots upright, 1 to 3 inches high. Branches lateral. Leaves closely set. Fruit-stalks terminating and also from the forks of the branches. Capsules egg-shaped, leaning when ripe. Lid short, conical, pointed. Mouth entire. WEBER.—Leaves very narrow, almost hair-like. Empal. very long. DILL.

In turf bogs, Scotland. DICKS. ii. 12.

wall HYP'NUM *parieti'num*. Shoots nearly flat, and winged, lengthened out. Fruit-stalks several together.—

Vaill. 29. 1.—Dill. 35. 13.—Hedw. hist. ii. 4. 13, a perpendicular section of the lid.—Buxb. ii. 1. 2, and ii. 2. 1.—Happ. 1. Hypn. 3.—Vaill. 29. 1.—Buxb. iv. 65. 3, is *H. rutabulum*.—Buxb. cent. 4. t. 28. f. 1, in Fl. suec. is an error for Vaill. t. 28. f. 1; and Buxb. cent. ii. 2 and 4, which is a *Bryum* in Sp. pl. syst. veg. and pl. is a similar error for Vaill. t. 28. f. 1.—H. ox. xv. 5. 20, is *H. proliferum*.—Vaill. 23. 9, is a different species.—Vaill. 25. 1, is *H. proliferum*.

Fruit-stalks 4, 5, or more together, at the base of the branches; about 15 lines long.—Shoot bent at the places where the branches issue out, so as to be zigzag. Very like the *H. proliferum* in its mode of growth, and in the proliferous shoots sending out other similar shoots, but the leaflets are more distinct, less compacted together, of a pale green with a silky gloss. WEIS.—Shoots lying on the ground, from a span to a foot long, consisting of 3 or 4 parts, shewing the annual increase, and as it grows in length at one end, the other end is converted into roots. Branches winged. The new shoot puts forth in the spring not from the end of the old one, but near to its end; is very densely clothed with leaves, and after a time sends out branches. DILL.

Woods, heaths, and shady places.

P. Feb. March.

It is used in Sweden to fill up the chinks in the walls of timber houses.

winged HYP'NUM *penna'tum*. Plant winged, branched. Leaflets tiled, pointed, in 2 rows, compressed, waved. Fence as long as the fruit-stalk. DICKS. 5.

Hedw. stirp. 3. 20.—Dickf. 1. 8.

Differs from *H. complanatum* as follows. Leaves transversely waved. Fruit-stalk not longer than the empal. Differs from *F. pennata* in the capsule

capsule being longer than the empal. DICKS.—Branches very short, expanding. Flowers from the bosom of the leaves. HEDWIG.

[Trunks of trees in woods between Troutbeck and Ambleside, Westmoreland. Dr. J. E. SMITH.]

HYP'NUM *plumofum*. Shoots winged; creeping. *plumed*
Branches crowded. Leaflets tiled; awl-shaped. Capsules
upright.—

Dill. 35. 16.

Shoots a span long. Leaflets very minute, very closely tiled, ending in a very fine hair, whence its downy appearance. Fruit-stalks not $\frac{1}{2}$ an inch long. Capsule egg-oblong. Lid small, conical. Mouth fringed. WEIS.—Shoots about a span long, brownish, with dark rust-coloured wool underneath, by which it adheres closely. Branches from each side of the shoot, generally undivided, clothed with very slender soft and shining leaves. Empal hairy. DILL.

H. sericeum β Hudf. 506.

Trunks and roots of trees in Enfield Forest, and on brick walls about London. DILL. Jan. Feb.

HYP'NUM *prælon'gum*. Shoots somewhat winged; *trailing*
trailing; little branches remote. Leaflets egg-shaped.
Capsules on crooked fruit-stalks.—

Dill. 35. 15.—Vaill. 23. 9.—Buxb. iv. 63. 3.

This species it is not so difficult to distinguish by the eye as by words. LINN.—Leaflets serrated. Fruit-stalks 1 inch long, from the sides of the shoots. Creeping along the ground for a foot or more. NECK.—At first sight distinguishable from all the other Hypnums by its shoots being very long, very closely crowded together, covering the trunks of trees in broad patches and hanging down. Shoots trailing, very tender, brittle when dry, a span long, or more, clinging to the trees by means of numerous brown woolly fibres. Leaflets small, triangular, ending in a hooked hair; alternate, in a double row. WEIS.—From a span to a foot in length; doubly winged. Leaves very small, triangular. Fruit-stalks an inch long, purple. Capsules dull green, brown when ripe; short, leaning. Veil pale green, straight. DILL.

Trunks of trees, rotten wood, and wet ground. [Bungay, Suffolk. Mr. STONE.] P. Oct.—Feb.

HYP'NUM *prolif'erum*. Shoots proliferous; nearly *proliferous*
flat and winged. Fruit-stalks several together.—

Curt. i. 2.—Dill. 35. 14.—Vaill. 25. 1.—H. ox. xv. 5, row 3. 20.

—Tourn. 326. c.—Ger. 1372. 7, cop. in Ger. em. 1561. 7, in Parh.

Park. 1310. 3, and in *J. B.* iii. 765. 1.—(*H. ox.* xv. 5. 21, and *Vaill.* 23. 9, referred to by *Haller*, and in *Mant. pl.* is clearly a different species.)

Its structure is very singular; one large compound shoot proceeding from the middle or disk of another, and this repeated several times in the same plant. LINN.—A span long or more, doubly winged. Leaflets very minute, very closely tiled. Fruit-stalks an inch long, (or more,) from the middle of the shoot, and from the rib of the branches 1 to 3 (4 or 5) in a place. Fence large, conical, hairy. Lid conical, pointed. Veil oblique. WEIS.—Fruit-stalks upright at the base, surrounded by a leafy empal. Capsules leaning, reddish, thick. Mouth, fringe in a double row.—Leaves so minute as hardly to be well distinguished by the naked eye. Capsules reddish, at first straight, then crooked. Empal. rough with hair. DILL.

Heaths and thick shady woods.

P. Dec.—Feb. CURT.—Autumn—April. DILL.

Covers the surface of the earth in the thickest woods through which the sun never shines, and where no other plant can grow. LINN.

**** Leaves bent back.

hooked HYP'NUM *adun'cum*. Shoots nearly upright; somewhat branched. Leaves pointing one way; awl-shaped; bowed back. Branches bowed back.—

Dill. 37. 26.

Fruit-stalks 2 inches high, or more. Branches hooked at the ends. Leaflets much bent back, distinguish it from the *H. filicinum*. NECK.—Resembles the *H. cupressiforme*, but the shoots are more straight, less branched; leaves longer, hooked, their ends pointing one way; fruit-stalks twice as long, rising as well from the middle of the shoot as from the bosom of the branches. The shoots are remarkably rigid. Fruit-stalks 2 inches long, rising out of a slender, short, scaly empal. Capsules egg-shaped, distended, leaning. Lid conical, short, blunt. WEIS.—Plant yellowish or tawney when growing out of water. RAY.—Empal. oblong, slender, scaly. Veil straight. Lower leaves less hooked than the upper ones. DILL.

Marshy and watery places, bogs, and wet pastures. [Turf pits on Ellingham and Geldestone fens. Mr. STONE.] P. Apr.—Aug.

compressed HYP'NUM *compressum*. Shoots winged; compressed. Leaflets sharp; bowed inwards. Capsules nearly upright, egg-shaped.—

Dill. 36. 22.

Resembles the *H. filicinum* in the crisp appearance of its leaves, its winged shoots and greenish yellow colour, but it is much shorter, less

less branched, its branches more creeping and forming a more acute angle with the stem. *Leaflets* hooked, ending in hairs. *Fruit-stalks* only an inch long. *Capsules* thick, egg-shaped. WEIS.—Two or three inches long, tender, compressed. *Leaves* narrow, in two rows, sharp, points bent backwards, pale green, soft, shining. *Fruit-stalks* 1 inch long, reddish. *Capsules* oblong egg-shaped, green, upright, yellow red and inclining when ripe. DILL.

Woods on the trunks of trees and on young twigs. In a wood near Tottenham. DILL. March, April. In Summer. WEIS.

HYP'NUM *cupressiforme*. Shoots somewhat winged. *cypress* Leaves pointing one way; bowed back; awl-shaped at the end.—

Fl. dan. 535.—Dill. 37. 23.—Vaill. 27. 13.—Pluk. 447. 6, ill done.—H. ox. xv. 5, row 2. 8.

Shoots irregular, yellow green; pellucid. *Fruit-stalks* from the base of the branches, and often twice their length. NECK.—Stems 2 to 4 inches long, creeping, irregular. *Branches* irregular, very leafy. *Leaflets* very densely tiled, hooked and hairy at the end. *Fruit-stalks* from the principal stem, an inch long. *Capsules* cylindrical, at first upright, leaning and bent when ripe. *Lid* short, conical, pointed. *Veil*, whilst young, straight, oblong. WEIS.—Stems stratified, forming large and dense patches; 2 or 3 inches long, irregularly branched. *Leaves* small, crowded, soft, ending in hooked points, pleasant green, smooth. Upper branches thick, bent at the ends; lower ones thinner and straighter. The plant has the appearance of crispness, but is not really so. DILL.

Woods at the roots of trees, and on thatch. R. syn. ST.

P. Feb.—March.

HYP'NUM *lo'reum*. Shoots creeping. *Branches* spreading straggling; upright. *Leaflets* pointing one way. *Capsules* roundish.—

Dill. 39. 40.—Vaill. 25. 2.—H. ox. xv. 5, row the last, 24, p. 626. —Buxb. iv. 64. 1.—Ger. 1370. 1.

Fruit-stalks from the base of the branches. NECK.—Nearly allied to the *H. squarrosum*. Ends of the branches thickest, bent back. WEIS.—*Fruit-stalks* more than an inch high, from the stem between the branches, upright. *Capsules* egg-shaped, leaning. Shoots near a foot long or more, the rib rigid, brittle, surrounded by pale green leaves, those towards the end bent back. DILL.

On the mountains in Crevctenan Ballenahinch in the county of Down, Ireland; in hilly situations near Gloucester. DILL.—In the mountainous

mountainous woods of Breadalbane. Mr. STUART in *fl. Scot.*—[Near Ambleside, Westmoreland. Dr. J. E. SMITH.] P. April.

marsh HYP'NUM *palus'tre*. Shoots creeping. Branches crowded; upright. Leaves egg-shaped; pointing one way. Capsules nearly upright.—

Dill. 37. 27.

Branches nearly the length of the fruit-stalks. NECK.—Branches upright, compressed, from $\frac{1}{2}$ to 1 inch high, numerous. Leaves in a double or triple series, sharp, hooked. WEBER.—Shoots slender, creeping, with few leaves, and those shrivelled. Branches generally simple, short. Leaves dull green, hooked at the end. Fruit-stalks from the base of the branches, red, longer than the branches. Caps. oblong, a little inclining, brown when ripe. Lid larger in diameter than the capsule. Veil straight, pale. DILL.

In wet places. On the banks of the Thames near Battersea. DILL.—At the roots of trees and in wet stony places. HUDS.—[Water fall at Roslin near Edinburgh. Dr. J. E. SMITH.] P. Jan.—April.

scorpion HYP'NUM *scorpioi'des*. Branches straggling; trailing; bowed back. Leaves pointing one way, tapering to a point.—

Dill. 37. 25.

Branches brown, hooked, and yellow at the ends. LINN.—Shoots trailing, cylindrical, 1 to 3 inches long. Branches rising upwards, thick, bent and thicker at the ends, about 1 inch long. Leaves spear-shaped, often ending in hairs, wrinkled at the base. Fruit-stalks $\frac{1}{2}$ to 1 inch high. Capsules cylindrical, slender, leavine. Lid pointed. Mouth with a white fringe. WEBER.—The barren plants are longer and thicker than the fertile plants, colour dark red, the ends purple and green. The fertile plants are entirely green, except here and there a little purple. DILL.

Turfy bogs and marshes. Near Bishop's Castle, Shropshire, and about Penter, near Bangor. Near Norwich, and in the North of England; and at Corriattachan in Strath Swandie in the Isle of Sky. [Turf pits on Ellingham and Geldestone fens. Mr. STONE.] P. Nov.—April.

scurfy HYP'NUM *squarro'sum*. Branches straggling. Leaves egg-shaped, awl-shaped at the point, bent back in different directions. *Sp. pl.*—Leaves spear-shaped, between folded and keeled, bowed back in 5 directions. *Syst. veg.*

Fl. dan. 535. 1.—*Dill.* 39. 38.—*H. ox.* xv. 5, row 2. 2.—*Fl. dan.* 648. 3, ill done.—(*Buxb.* iv. 65, is *Bryum squarrosum*.)

Branches

Branches scurfy on all sides. LINN. *succ. n.* 1027.—Often 6 inches long, creeping, rib a beautiful purple, shining through the interstices of the leaves. *Leaves* ending in a sharp point, as fine as a hair. *Fruit-stalks* 1 inch to 1½ high, straight, springing from a cylindrical, scaly and hairy fence. *Capsules* egg-shaped, leaning. *Lid* blunt. *Mouth* wide open, fringe yellow. I have found capsules in July. WEIS. DILL.—*Capsules* rarely met with. RAY.

Moist meadows and pastures.

P. March—June.

β LINN.—Smaller. Leaves triangular, open, reflected. DILL.

Vaill. 27. 5.—Dill. 39. 39.

Not much different from (α) except in the leaves being smaller, paler, closer set, and more bent back. WEIS.—The *Capsules* too are smaller, and the lid sharper. DILL.

Wet places.

HYP'NUM *viticulo'sum*. Shoots creeping. Branches *twig* straggling; cylindrical. Leaflets open, taper-pointed.—

Dill. 39. 43.—H. ox. xv. 5. row 1. 7.—Vaill. 23. 1, *leaves too pointed*. Is not *H. stellare* of Weber?—Pluk. 47. 4.—Hedw. *hist.* i. 3. 11. a. b.

Shoots straight, crowded; 2 or 3 inches long; stiff. *Fruit-stalks* 1 or 2 inches high, from the sides of the branches. NECK.—Covering the trunks of trees in large patches. *Stems* fibrous, creeping, very long, branched. *Branches* upright, when dry cylindrical, and twisted like a rope. *Leaflets* nearly triangular, the upper ones largest. *Fruit-stalks* about an inch high, rising from the bosom of the branches, out of small hairy scaly fences. *Capsules* small, shining. *Lid* very short, conical, pointed. *Mouth* fringed when magnified, smooth to the naked eye. WEIS.—*Fruit-stalks* and *Capsules* upright. Appears crisp when dry. *Leaves* triangular, keeled, pointed but not hairy. DILL.

On trunks of trees, and sometimes on the ground on the Chalk hills between Northfleet and Gravesend. DILL. 307.—[By the North West corner of the bridge at Kirkby Lonsdale; and in Armingdale Wood, near Norwich. Dr. J. E. SMITH.—Earsham, Suffolk. Mr. STONE.]

P. March, April.

***** Shoots tree-like, the branches bundled.

HYP'NUM *alopecu'rum*. Shoot upright. Branches *fox-tail* in bundles; terminating; sub-divided. *Capsules* rather nodding.—

Dill. 41. 49.—Vaill. 23. 2, is clearly this plant, though referred by Dill. to *H. rutabulum*.—Vaill. 23. 5.—H. ox. xv. 5. row the last, 30.—(H. ox. xv. 5. row 4. 23, is said by Dill. to be a variety of this plant on the authority of Bobart's herbarium, but it seems to be *H. rutabulum*.)

Leaves

Leaves of the stem open. LINN.—Grows like a little tree. NECK.—In its tree-like mode of growth it resembles the *H. dendroides*, but the shoots are longer, the trunk is taller, the branches expand more, and are more frequently branched again; the extremities are not straight, but hanging down, and the leaves expanding. When dry the leaves bend back at the points, but in the *H. dendroides* they lie close pressed to. WEIS.—*Fruit-stalks* an inch high. *Capsules* leaning. *Lid* with a long slender beak. HALLER.—*Stem* 4 or 5 inches high, covered with whitish pointed scales. *Leaves* ferrated. *Fruit-stalks* shorter than the branches, bent. *Capsules* egg-shaped. *Lid*, beak bent. LEERS.—*Stems* light red, rising from a trailing root. *Leaves* broad at the base, tapering to a point, alternate. *Empal.* scales ending in hairs, compact. DILL.

Moist and shady places at the roots of trees, and by the sides of rivers.
P. March, April.

tree HYP'NUM *dendroides*. Shoot upright. Branches in bundles, terminating; mostly simple. Capsules upright.—

Dill. 40. 48.—*Fl. dan.* 823. 2.—*H. ox.* xv. 5. row 5. 31.—*Tourn.* 326, no capsules.—*Vaill.* 26. 6.—*Happ.* i. *Hypn.* 1.

Leaves of the stem lying close. LINN.—Primary shoot trailing. NECK.—Readily distinguished by its stems closely compacted together, its shrub-like appearance, from 2 to 4 inches high, terminated by a bush of branches. *Branches* upright, cylindrical, smooth, pointed at the end. *Leaflets* egg-spear-shaped, pointed, flat, closely tiled. WEIS.—*Fruit-stalks* more than an inch long, from the base of the branches; upright. *Capsules* slender, upright. *Lid* conical, short. *Veil* slender. DILL.—*Fruit-stalks* longer than the shoots. *Veil* covering the whole capsule. *Leaves* a little ferrated. LEERS.

Moist woods and shady places about the roots of trees, and in moist pastures.
P. Feb. March.

fair HYP'NUM *pulchellum*. Shoots crowded, upright. Branches somewhat bundled, strap-shaped. *Fruit-stalks* long. *Capsules* upright, somewhat oblique. DICKS. ii. 13.
Dickf. 5. 6.

Shoots short, crowded into close tufts. *Branches* nearly equal, expanding. *Leaves* near together, egg-spear-shaped, shining. *Empal.* short. *Fruit-stalk* as long again as the shoot, rising from its base, upright. *Capsules* inversely egg-shaped. *Fringe* toothed. *Lid* pyramidal. *Veil* none on the specimens. DICKS.

Shady woods, Scotland.

HYP'NUM *Smith'ii*. Shoots winged, branching *hairy-veiled* on all sides. Leaves nearly circular, somewhat concave. Capsules egg-cylindrical. Veil hairy upwards. DICKS. ii. 10.

Dickf. 5. 4.

Deep green. Shoots hard, woody, pointed: in the middle, or towards the end bowed in. Branches if pressed down recovering their former direction, on the pressure being removed. Wings strap-shaped, bowed in and curled at the ends. Leaves tiled-open, pressed to at the base. *Empal.* cylindrical, the leaves egg-spear-shaped ending in hairs. *Fruit-stalks* numerous, solitary, very short. *Capsules* upright, egg-shaped, nearly cylindrical, reddish brown, shining. *Fringe* obscurely toothed. *Lid* roundish, with a beak a little oblique. *Veil* slanting. DICKS.

Trunks of trees near Barham Downs, Kent. Dr. J. E. SMITH.

***** Shoots nearly cylindrical.

HYP'NUM *attenuatum*. SCHREB. 100.—Shoots *tapering* branched. Branches bowed in, sometimes tapering, sometimes thickening. Leaves egg-shaped, pointing one way. Capsules upright, tooth fringed. DICKS. ii. 13.

Hedw. stirp. i. 12.—*Dill. 42. 66, the leaves bad.* HEDWIG.

Fruit-stalks upright, lateral. *Veil* slender, twisting. *Capsules* cylindrical. *Lid*, beak blunt. *Fringe* double, outer row of teeth 16. HEDWIG.—Rather thick, much branched, yellow green, tawney when dry. DILL.—In large patches on the trunks of beeches, particularly on the Northern side. DILL.

Woods on trunks of trees, Scotland.

HYP'NUM *atro-virens*. Shoots creeping, branched, *blackishgreen* thread-shaped. Leaves egg-spear-shaped, limber. Capsules inversely egg-shaped, fringed, on crooked fruit-stalks. DICKS. ii. 10.

Dill. 43. 67.

Slender, irregularly branched. Leaves very small, loosely disposed, dull green and pellucid when wet, opaque and blackish when dry. *Empal.* pale, slender, fixed near to the origin of the branches. *Fruit-stalks* blackish. *Capsules* small, black. *Lids* deciduous. DILL.

Woods at the roots of trees, Scotland.

HYP'NUM *curtipendulum*. Shoots straggling, cylindrical, *pendulous* Leaves egg-shaped, pointed, open. Capsules pendant.—

Dill. 43. 69.

Does not flower when young. *Fruit-stalks* not more than $\frac{1}{2}$ inch long; from the bosom of the branches. *Capsules* yellowish when ripe. **NECK.**—From 2 to 4 inches or more in length. Wide-spreading, much branched, rigid. *Leaves* ending in a sharp hair-like point, closely tiled, broader and more dense at the ends of the shoots, so as to give them a blunt club-like appearance. *Fruit-stalks* hardly $\frac{1}{2}$ inch long, mostly 2 together, upright. *Capsules* cylindrical at first, and upright; when ripe egg-shaped and pendant. *Lid* short, beaked. *Fence* rising nearly up a third of the fruit-stalk. **WEIS.**—Recumbent, matted together. *Shoots* thick, rigid, irregularly branched. *Leaves* green, numerous. *Empal.* long, pointed. *Capsules* yellowish. **DILL.**

On the trunks of beeches, in woods. On stumps in Enfield Forest, near Southgate, and in Yorkshire. On large stones on the Marlborough Downs, Wiltshire, and on the rocks of Snowdon. **DILL.**

P. Feb.—April.

pointed **HYP'NUM** *cuspidatum*. Shoots straggling; pointed at the ends by the edges of the leaves rolled inwards.—

Dill. 39. 34.—*Buxb.* ii. 3. 1 and 2.—(*Vaill.* 28. 11, cannot be the plant, the points of the leaves being bowed back, and seems more to resemble *H. nitens* of Schreb. figured in *Dill.* 39. 37.—*Buxb.* ib. 3, more resembles *H. riparium*; and 4, *H. purum*.—*Happ.* ii. *Hypn.* 4, is a different species.)

Fruit-stalks in the bosom of the branches; very long. Stalks when old, reddish black, by which it is distinguished from *H. compressum*. **NECK.**—The sharp rigid points at the ends of the middle and terminating shoots, afford a ready mark of distinction. From 1 to 4 inches high. *Fruit-stalks* 2 or 3 inches long, upright, lateral. *Fence* scaly, long. *Capsules* egg-shaped, thick, a little bent; leaning. *Lid* blunt, short, scarlet. *Mouth* fringed. **WEIS.**—Pale green, yellowish or reddish when in fruit. *Leaves* alternate, thin, pellucid, shining. **DILL.**

Bogs, marshes, wet pastures and moist woods. P. March—May.

cylindrical **HYP'NUM** *cylindricum*. Shoots creeping. Branches and capsules cylindrical. Leaves closely tiled, egg-shaped, pointed. **DICKS.** ii. 12.

Dill. 41. 57.

Shoots (on the ground) sometimes branched, soft, shining, pale green or yellowish. *Leaves* narrow, not hairy, pressed to. *Fruit-stalks* reddish, 1-3d of an inch long. *Capsules* upright, slender, cylindrical. *Lids* pointed. **DILL.**

Woods on the trunks of trees, Scotland.

HYP'NUM *filamento'sum*. Shoots crowded, thread- *thready*
shaped, branched. Capsules egg-shaped, fringed. Fence
bulb-like. Dicks. ii. 11.

Dill. 36. 18.

Crowded, compressed, closely interwoven, so that it is hardly
possible to extricate a single plant. Shoots and branches cylindrical,
not thicker than a strong sewing thread. *Fruit-stalks* purple, an inch
long. *Capsules* slender, straight, reddish and bent when ripe. *Empal.*
oblong, large, composed of unequal scales. DILL.

Woods in Scotland.

HYP'NUM *filifor'me*. Shoots straggling; very *thread-li'e*
much branched. Branches thread-shaped, nearly cylin-
drical. Capsules oblique. HUDS. 497.

Dill. 42. 62.

Forming a compact interwoven tuft. Much branched; branches
slender. *Leaves* very narrow, smooth, resplendent green, when dry
pressed to, standing out when fresh. *Fruit-stalks* $\frac{1}{2}$ inch high, very
slender, reddish. *Capsules* slender, at first upright, afterwards
leaning a little, and again upright when ripe. *Empal.* slender,
hairy. DILL.

H. filiciforme. Hudf. ed. i. 421.—*H. filicifolium*. Linn. mant. 310.
—*H. filifolium*. Linn. syst. veg. ed. xiii. and xiv, all errors. ST.

Trunks of trees.

P. Feb.

HYP'NUM *illic'ebrum*. Shoots and Branches strag- *glafswort*
gling; cylindrical; nearly upright; blunt.—

Dill. 40. 46. *A. B.* without capsules.—*Vail.* 25. 7, cop. in Dill. 40.

46. c.—*Fl. dan.* 706. 1.

Leaves ending in a split-point; very closely tiled. Pale, shining,
tender, like the *H. purum*, but differs in its blunt branches, thick,
short, not winged. NECK.—*Empal.* leaflets ending in hairs. *Fruit-*
stalks $\frac{1}{2}$ inch high. *Capsules* egg-shaped, upright, when old leaning
a little. *Lid* pointed. *Mouth* fringed. WEBER.—*Leaves* roundish,
entirely covering the stalks. *Capsules* small, short, upright. RAY.
—*Branches* cylindrical. *Leaves* very pale green. DILL.

Heaths, shady places, and moistish pastures. HUDS.

P. March, April—Oct.

HYP'NUM *mol'le*. Shoots pendant, thread- *soft*
shaped, very much branched. *Leaves* tiled, egg-shaped,
pointed. *Capsules* roundish, on crooked fruit-stalks.
Dicks. ii. 11.

Dicks. 5. 3.

Whole

Whole *plant* soft, flaccid, and flexile. *Shoots* bundled, floating, roundish, somewhat zigzag. *Branches* of very unequal lengths, the ends mostly blunted. *Leaves* upright, concave at the base, open at the end, broad egg-shaped. *Scaly bulb*, leaves spear-shaped, taper-pointed. *Fruit-stalks* few, short, bowed in. *Fringe* with a ring, with many teeth. *Lid* and *Veil* not found. **DICKS.**

Banks of rivulets in the Highlands of Scotland.

meadow

HYP'NUM *pu'rum*. Shoots winged, but straggling; awl-shaped. Leaves egg-shaped; blunt; approaching.—

Curt. iii. 34.—*Fl. dan.* 706. 2.—*Dill.* 40. 45.—*Vaill.* 28. 3.

Branches bowed. *Leaves* ending in a spit-point. *Fruit-stalks* 2 inches long. **NECK.**—Readily known by its peculiar sleek habit, by its freedom from dirt, and its long, cylindrical winged scaly shoots. A span long in wet, but shorter in dryer places. *Fruit-stalks* 1 to 2 inches high, from the mid-rib of the shoot and branches; upright, shining. *Fence* oblong, scaly. *Capsules* cylindrical, leaning. *Lid* beaked. *Mouth* fringed. **WEIS.**—*Stems* nearly cylindrical, upright or reclining; often branched. *Branches* winged. *Leaves* blunt, thin, soft, smooth, rather shining, when dry crumpled. **DILL.**

Pastures, meadows, banks, and woods.

P. Nov. CURT.—Feb. **HUDS.**

Fishermen make use of it to scour their worms.

β HUDS. 504. **LIGHTF.** 760.—More slender. *Ribs* of the leaves red.

Dill. 40. 47.—*Vaill.* 29. 10.—*Neck. meth.* 1. 10.—*Buxb.* iv. 64. 1, the right hand of the upper figures; and 3.

Longer and more slender than the preceding, branches and leaves more pointed, more shining when dry, more thinly set, and exposing more distinctly the red mid-rib. **DILL.**

water

HYP'NUM *ripa'rium*. Shoots cylindrical, branched. Leaves pointed, open, distant.—

Dill. 40. 44.—*Fl. dan.* 649. 1.—*Buxb.* ii. 3. 3.

Shoots of nearly equal thickness, in some plants very long, in others not more than an inch, very slender, red. *Capsules* red, hooked, very short, fringed at the mouth. **LINN.**—*Fruit-stalks* 1 inch long, from the base of the shoots. **NECK.**—*Stem* 4 to 6 inches long. *Shoots* few and irregular, cylindrical if above, winged if below the surface of the water. *Leaves* egg-shaped, closely tiled on the young cylindrical shoots, more distant and spear-shaped on the principal stem; and hairy at the end. *Fruit-stalks* an inch long, upright, lateral. *Capsules* egg-shaped. *Lid* conical, beak short. *Mouth* fringed.

Veil

Veil upright, covering the young capsule. *Fence* very short. *Wais*.
 —When growing out of the water, or where it is often exposed to
 the air, the leaves are shorter and blunter, surrounding the stem,
 but when it is always immersed in water they are longer, more
 pointed, and wing the stems. *DILL*.

On walls, and moist stony places on the banks of rivers, on planks
 and stones about water mills, and in rivers. [Bungay, Suffolk.
 Mr. STONE.] P. Sept.—April.

HYP'NUM *stramin'eum*. Shoots upright, thread- *straw-colour'd*
 shaped, somewhat branched. Leaves egg-shaped,
 without ribs, tiled. *Dicks*. 6.

Dicks. 1. 9.

Shoots nearly upright, strap-shaped, slender, when dry very brittle,
 2 inches and more in length, straw-coloured; sometimes simple,
 or with 1 or 2 branches. *Leaves* convex and concave, glittering,
 pressed to. *Fruit-stalks* lateral, upright, red, 1 and sometimes
 2 inches long, solitary or 2 together. *Capsules* egg-shaped, upright,
 hunched on one side. *Lid* short, somewhat pointed. *Dicks*.

In a marshy place on the West side of Hampstead Heath, near
 London.

***** *Shoots crowded*.

HYP'NUM *clavella'tum*. Creeping. Branches *club*
 upright, greatly crowded. Capsules bowed. Lids bent
 inwards.—

Dill. 85. 17.

Fruit-stalks twice as long as the branches. *NECK*.—*Shoots* 5 to 7
 inches long, stiff, growing in dense patches, tiled one upon another.
Branches upright, or trailing, on opposite sides of the shoot,
 short, rigid, 2 or 3 lines long, and nearly 1 broad; those in the
 middle the longest. *Leaves* hairless, very entire. *Fruit-stalks* lateral,
 4 or 5 lines long, inclosed at the base by an empalement. *Caps*.
 a line in length. *Lid* very sharp. *Veil* smooth, a line long, reaching
 half way. *POLLICH*.—Fixed by slender rust-coloured roots to
 the bark of trees. *Leaves* small, crowded. *Capsules* roundish. *Lid*,
 beak crooked. *Veil* brownish, broad at the base, suddenly tapering
 to a point. *DILL*.

On the dead branches and trunks of trees.

P. Dec.—Feb.

HYP'NUM *gra'cile*. Shoots creeping. Branches *bird's-foot*
 in bundles; cylindrical; nearly upright. Capsules
 upright; egg-shaped.—

Dill. 41. 55.—*Fl. dan.* 649. 2, ill done, if the plant.

Hangs suspended from the bark of trees in numerous cylindrical pointed branches bending upwards, and somewhat resembling the claw of a bird. *Fruit-stalks* from the base of the branches, $\frac{1}{2}$ an inch high. *Capsules* upright, pointed, ochrey colour when ripe. DILL.

H. ornithopoides. HUDS.

Trunks of trees and rocks. On beech trees in Enfield Chace. On rocks on the Grey Weathers. P. Feb.—April.

mousetail HYP'NUM *myosuroi'des*. Shoots very much branched; branches awl-shaped; somewhat cylindrical, but tapering each way.—

Dill. 41. 51.—*H. ox.* xv. 6. row 3. 3.—*Vaill.* 27. 6.

Capsules leaning. NECK.—Pale green. Stem-leaves almost 3-cornered. DILL.

Woods at the roots of trees, and on stones and rocks. [Bungay, Suffolk. Mr. STONE.] P. Jan.—March.

β HUDS.: 508.—*Capsules* upright.

Dill. 41. 50.—*H. ox.* xv. 5. 27.—*Vaill.* 28. 4, but leaves too closely tiled, and too pointed. *Capsules* rather inclining than upright.

Fruit-stalks from the shoots, and branches, 1 inch long. *Capsules*, mouth, fringe whitish. NECK.—*Stem* 2 to 4 inches long; branched towards the end. *Leaves* closely tiled, egg-spear-shaped, ending in hairs. *Fence* short, slender, scaly. *Capsules* upright or leaning. WEIS.—Shoots thin, creeping, sending out thready brown roots. *Branches* numerous, cylindrical, tapering at each end. *Leaves* crowded, egg-shaped, pointed, smooth, shining, pressed to when dry, rather standing out when fresh. *Empal.* slender; scales straight, longer than the leaves. *Fruit-stalks* reddish, $\frac{1}{2}$ or $\frac{3}{4}$ of an inch long. *Capsules* cylindrical, upright, tawney when ripe. DILL.

At the roots of trees, and on large stones in woods.

Jan. — March.

γ HUDS.—Shoots and branches short, nearly upright.

Dill. 41. 52.

Shoots about an inch long. *Branches* short, upright. *Leaves* egg-shaped, dull dark green. DILL.

On the walls at Hampstead. DILL.

Autumn—Jan.

δ HUDS.—Leaves dark green, shining, ending in hairs.

Dill. 41. 53.

Leaves soft, dark green, shining, ending in hairs, which appear grey and reflected when the plant is dry. DILL.

On old walls, as of Westham Abbey, near Stratford, Essex; and on rocks on Emott pastures, Yorkshire. DILL.

HYP'NUM sciuroi'des. Shoots upright; branched; squirrel-tail bowed.—

Hedw. hist. ii. 8. 45.—*Dill.* 41. 54.—*Vaill.* 27. 12.—*H. ox.* xv.

5, row the last, 27.

Fruit-stalks when ripe twisted like a rope. *Barren flowers* on distinct shoots. Shoots 2 inches long, cylindrical. *Fence* rising half way up the fruit-stalk. *Primary shoots* hairy. *NECK*.—*Stem* creeping, 3 or 4 inches long. Shoots from 1 to 1½ inch; seldom branched. *Leaves* closely tiled, egg-spear-shaped, pointed, ending in hairs. *Fruit-stalks* lateral, upright, ½ inch high. *Fence* slender, scaly. *Capsules* cylindrical-egg-shaped. *Lid* conical, pointed. *Fringe* white. *Veil* yellow at the end. *WEIS*.—Creeping, interwoven, fixed to the bark of trees. *Branches* numerous, upright, simple or divided, but generally bent like the tail of a squirrel. *Empal.* at the base of the branches, slender, scales narrow, ending in short hairs. *Capsules* upright, dark brown when ripe. *Lid* very small. *Fruit-stalks* twisting when dry. *DILL*.

Trunks of old trees. [Bungay, Suffolk. Mr. STONE.]

P. Feb.—April.

HYP'NUM seric'eum. Shoot creeping. Branches silky crowded; upright. Leaves awl-shaped. Capsules upright.—

Dill. 42. 59.—*Curt.* ii. 21.—*H. ox.* xv. 5. row 4. 25.—*Vaill.* 27.

3. a. b.—*Garf.* 639.—*Hill in Phil. Tr. abr.* x. 22. 129 to 133, at p. 762, parts of fructification, who was right in his opinion that the heads of this tribe of plants were capsules containing seeds, though he was mistaken in supposing the teeth of the peristoma to be clives.

—*Lonic.* i. 55. 1, cop. with the addition of capsules belonging to other species in *Trag.* 946.—*Ger.* 1374. 12, cop. in *Ger. em.* 1563. 13, and cop. again in *Park.* 1313. 8.

Grows so firmly to the trunks of trees that it can scarcely be taken away entire. *LINN*.—*Branches* 3 or 4 lines long, cylindrical. *Fruit-stalks* from the bosom of the branches, pale red. *NECK*.—Shoots long, creeping, crowded, greatly branched. *Branches* short, roundish. *Leaves* slender, very closely tiled, ending in long hairs. *Fruit-stalks* ½ to 1 inch high, lateral, crowded. *Fence* short, thick, scaly. *Capsules* long, nearly cylindrical, but thickest at bottom, upright. *Mouth* narrow, fringe white. *Lid* beaked. *Veil* pale. *WEIS*.—*Branches* mostly pointing one way. *Leaves* soft, shining. *DILL*.

On the ground on dry banks, trunks of trees, and walls.

P. Sept.—April.

creeping HYP'NUM *serpens*. Shoots creeping. Branches thread-shaped. Leaves very minute.—

Dill. 42. 64.—Vaill. 28. 2, 6, 7, 8.—H. ox. xv. 5. row the last, 21, p. 625; *ib.* row 3. 14. p. 625; *ib.* 6. row 6. 16, with capsules probably of *Bryum caespitium* which sometimes seems to grow from plants of *H. serpens*.

Fruit-stalks from the base of the branches, $\frac{1}{2}$ inch high. Shoots on the ground 6 inches, on trees 2 inches long. NECK.—Shoots abounding with thickset slender fibres, forming broad patches, closely adhering to the earth. Branches very slender. Fruit-stalks numerous, upright. Capsules cylindrical, leaning. Lid pointed. Mouth fringed. WEIS.—Branches numerous, short, generally simple. Leaves too small to be distinctly seen by the naked eye, green, not shining. Empal. small, hairy. Fruit-stalks an inch high, or more, fine purple. Capsules long, straightish. Veil upright, broad at the base, silvery, shining. DILL.

On the ground under hedges, on the trunks of trees, especially young ones, on wood, stones, and sometimes on old bones. DILL.—On rotten wood, and in wells. LIGHTF. P. March, April.

velvet HYP'NUM *veluti'num*. Shoot creeping. Branches crowded; upright. Leaves awl-shaped. Capsules leaning.—

Dill. 42. 61.—Happ. iii. Hypn. 6.—Fl. dan. 475.—Vaill. 26. 9, heads and the single leaf good; leaves of the shoots too close to the stem.—(Buxb. iv. 62. 2, is *H. rutabulum*.; *ib.* 3, is also referred to by Dill. and Linn. but the fruit-stalks proceed from near the ends of the branches.)

Fruit-stalks twice the length of the branches. NECK.—Leaves hairy at the end. Fruit-stalks lateral, an inch long. Fence scaly, inclosing the thick base of the fruit-stalk. Capsules cylindrical, or egg-shaped. Lid conical, short. WEIS.—Shoots crowded, interwoven, firmly adhering to the earth and the bottom of trees by rust-coloured woolly fibres. Stem-leaves broader than the branch-leaves. Empal. short, hairy. Lid blunt. DILL.

At the roots of trees, in woods, and hedges, in shady places and barren pastures. P.

Capsules appearing in autumn, and coming to perfection in Feb. and March.

β HUDS.—Smaller, shorter, of a paler green. R. syn.

Shoots seldom more than 3 or 4 lines long. Leaves egg-shaped. Fruit-stalks coloured. NECK.

1313. JUNGERMANNIA. Star-tip.

ESS. CHAR. *Fruit-stalk naked. Capsule with 4 valves. Fertile flower sitting, with roundish seeds.*

OBS. Many of the species are beautiful microscopic objects.—For a better account of the parts of fructification see page 24.

* *Shoots winged; pointing 1 way.*

JUNGERMANNIA *angulosa*. Shoots simply angular winged, flowering from the middle. Leaflets broadish, lopped, with 3 blunt teeth. Empalement bell-shaped. DICKS. 7.

Schmid. 22.—Hedw. theor. 18. 89 to 92.—Mich. 5. 10, confessedly cop. in Dill. 71. 22. C, D, E.

Shoots simple or branched. Leaves flat, green, pellucid, ending in 3 blunt teeth. Distinct from *J. trilobata*, the pinnales of which are eared and the leaflets smaller. DICKS.

Moist shady places.—In Wales. DILL.

Sept.

JUNGERMANNIA *asplenoides*. Shoots simply spleenwort winged. Leaflets egg-shaped; somewhat fringed.—

α Hedw. theor. 16. 17. 81. 82 to 88.—Dill. 69. 5.—Mich. 5. 3. 00.—H. ox. xv. 6. row 2. 41, leaflets so distant that I suspect it to be a different plant.—(Scop. 62. 1337, instead of 1338, at ii. p. 321, is variety *β*.)

Shoots 3 or 4 inches long; pale green. Leaves, upper edge fringed with little teeth, alternate. Fruit-stalks terminating, an inch long, rising out of a sheathing empalemt. Capsules egg-shaped, purplish black, shining. WEIS.—Trailing, sometimes branched. Leaves pellucid, pale green, without veins. I have never observed any roots. DILL.

Road sides and on trees, in woods and wet shady places; also near springs and rivulets, when it is sweet scented. [Earsham and Sexton Woods, near Bungay, Suffolk, Mr. STONE.]

P. Feb. — April.

β Leaflets more crowded.

Dill. 69. 6.—Mich. 5. 1 and 2.—Vaill. 19. 7.—H. ox. xv. 6. row 2. 42.—(Vaill. *ib.* a, b, is thought by Dill. to be *J. viticulosa*.)

Plant from 1 to 2 inches long. Fruit-stalks 12 lines long, terminating. NECK.—Shoots more branched than in (*α*) shorter. Leaflets smaller and more crowded. WEIS.

In the same situations with *α*.

forked JUNGGERMAN'NIA *bicuspidata*. Shoots simply winged; flowering in the middle. Leaflets with 2 teeth.—

Dill. 70. 13.—Mich. 6. 17.—Schmid. Jung.

Fruit-stalks 6 to 8 lines long. Capsules oblong, brown. NECK. DILL.—Shoots less branched than in the *J. bidentata*, and more limber, from $\frac{1}{2}$ to 1 inch long. Fruit-stalks about $\frac{1}{2}$ inch long. Empal. 2 lines long, at the origin of the branches. WEIS.—Leaflets with 2 teeth at the and forming an acute angle. SCHOLL.

Shady places and moist woods.

P. March, April.

cloven JUNGGERMAN'NIA *bidentata*. Shoots simply winged; flowering at the ends. Leaflets with 2 teeth.—

Schmid. jung. f. 14.—Dill. 70. 11.—Fl. dan. 888.—Vail. 19. 8.

—H. ex. xv. 6. row 2. 47.—Mich. 5. 12.—Fet. 13. 4.

Empal. terminating; obscurely 3-cornered. Fruit-stalk whitish, tender, an inch long. NECK.—Shoots 1 to 3 inches long, generally winged. Fruit-stalks at the ends of the shoot or the branches. WEIS.—Leaflets with 2 teeth at the end forming a half moon. SCHOLL.—Leaves pale green, pellucid, alternate, fixed by a broad base to the rib, pointing upwards. Fruit-stalks leafy at the base. Capsules black brown. DILL.

Woods and moistish heaths, and shady banks.

Oct.—Dec.

powdered JUNGGERMAN'NIA *fissa*. Scop. n. 1345.—Shoots simply winged. Leaflets cloven. Stem with barren flowers at the end. LIGHTF. 770.

Dill. 31. 6.—(Mich. 5. 14, is also referred to by Dill. Linn. Scop.

Huds. and, though not without a mark of doubt, by Lightf. Weber seems more than doubtful, “*omnino dubius*,” and observes that Micheli has represented the leaves as almost cloven. But any one who compares the figures of Dill. and Mich. will be astonished that so accurate an observer as Dill. should refer to the fig. and description of Micheli, especially when Micheli describes the fissure as being scarcely perceptible. The leaves of Dill. fig. are irregularly square, with open segments, those of Micheli's egg-shaped, with segments close together. Nor is it less singular that Dill. should refer his plant to the genus *Mnium*, when in Micheli's fig. of what Dill. took for the same plant, there is a figure, as Scop. justly remarks, of a capsule similar to those of the genus *Junggermannia*. Nor is it much less singular that Linn. should adopt, without examination, the designation and synonyms of Dill.)

Small, whitish, creeping, leaves pointing 2 ways. Leaflets notched at the end, and the segments sharp pointed. Scop.—Roots extremely slender and numerous from the mid-rib, and fixing the plant

plant firmly to the ground. *Fruit-stalks* short, terminating and lateral. *Capsules* or powdery heads, pale green. *Leaflets* tender, pellucid, cloven at the end, opposite. I have seen no other capsules than these powdery heads. DILL.

Mnium fissum. Linn.

In wet places about Highgate, and on Shooter's Hill near Eltham, and especially in a rivulet running through Old-fall Wood, between Highgate and Muscle Hill.

Feb.—April. DILL.—Scotland. LIGHTF.—P. March.—Ost. HUDS.

JUNGERMANNIA *inflata*. Shoots simply *inflated* winged, flowering at the ends. Capsule oblong, inflated. Leaflets cloven, the ends blunt. HUDS. 511.

Dill. 70. 12, (no fructification.)—Mich. 5. 13.

In wettest shady places. DILL.—Moist heaths and woods.

Nov.—March.

JUNGERMANNIA *lanceolata*. Shoots simply *spear-leaved* winged; spear-shaped; flowering at the ends. Leaflets very entire.—

Dill. 70. 10.—Mich. 5. 6 and 7.—Happ. i. jung 2.

Grows in large patches. Shoots hardly 1 inch long, simple, or divided into 2 or 3 branches. Leaflets alternate, crowded at the ends of the branches. *Fruitst.* near $\frac{1}{2}$ inch long, from the ends of the branches, white. *Caps.* greenish brown or blackish. WEIS.—Shoots sometimes branched. *Empal.* slender, pallid, cloven into segments. DILL.

Moist shady banks.

Feb. March.

JUNGERMANNIA *macrorrhiza*. Shoots upright, *long-rooted* branched, flowering at the ends. Leaflets alternate, blunted, open. DICKS. ii. 16.

Dicks. 5. 10.

Leaves, the uppermost purplish. Root large, branched. DICKS. Higher mountains of Scotland.

JUNGERMANNIA *polyanthos*. Shoots simply *imbricated* winged. Leaflets very entire; tiled; convex.—

Dill. 70. 9.—Mich. 5. 5.

Flowers numerous, rising from the middle of the branches, on their sides.—Shoots about 1 inch long, winged. Leaflets alternate, egg-shaped, with a blunt point. *Fruitst.* $\frac{1}{2}$ inch high, from the midrib and the origin of the branches. *Caps.* brown red; egg-shaped.

WEIS.

WEIS.—Short, branched, stiff. *Leaflets* roundish, short, thin, pellucid, tiled: *Empal.* white, short, with 4 clefts. In the fig. of Micheli the leaves are ill done, and roots are erroneously added to the flower. DILL.

Woods, moist shady banks, amongst moss, and on the sides of rivulets.—Lead hill, and between Dorking and Cold Harbour, Surrey, in marshy places. P. March, April.

red JUNGERMANNIA *purpurea*. SCOP. n. 1343.—Wings with little scales underneath. *Leaflets* roundish, convexo-concave, embracing the stem. LIGHT. 778.

Dill. 69. 1.—Mich. 5. 16, referred to by Lightfoot, has a general resemblance to the plant, but the leaflets are fingered.

Leaflets pointing from 2 opposite lines, nearly egg-shaped, transparent, smooth, embracing the stem, pointed, each furnished with a very small ear-like leaf. I have never seen any other than fertile plants. LINN.—I have frequently found it with capsules. HUDS. 473. Stems hollow, reddish. *Leaves* bending down, concave, roundish. SCOP.—Shoots creeping, strap-shaped, the ends rising upwards. *Leaflets* about a line in diameter, flat. POLLICH.—Varies greatly in appearance. The young plants in wet places crowded, upright. *Leaves* very small, roundish, nearly flat, pellucid, alternate, without appendages. When older, the leaves are larger, more closely set, convexo-concave, with scaly appendages at the base, resembling the leaves in shape. In some plants when fully grown the leaves are roundish; in others spoon-shaped; and in another variety gathered on the banks of mountain lakes, I have found the leaves green, pellucid, not crowded, almost embracing the stem. Shoots sometimes branched, from 1 inch to a foot long when growing in running water. Have not found it in flower. DILL.

Mnium Jungermannia. LINN. who observes that he placed it under that genus on the authority of Dill. See Fl. suec. n. 984.

Bogs, rivulets, and cascades in mountainous situations, and in ditches and turfy heaths. On Cader Idris, Snowdon, and Glyder. DILL.—[In moist peat earth on a mountain called Cowfand, and on the sides of hills in the Forest of Dartmoor, Devonshire. Mr. NEWBERRY.] P. March—Aug.

toothed JUNGERMANNIA *quinquedentata*. Shoot winged; branched; flowering at the end. *Leaflets* with 5 teeth.—Dill. 71. 23.—Mich. 6. 2, larger than natural.

Leaflets with 3, rarely with 4 teeth. *Empal.* with 5 teeth, a line or more in length. NECK.—Shoot sometimes simple, taking root as it creeps along. *Caps.* appear in autumn, it blossoms in the spring. *Leaves* 4-sided, teeth or scollops from 1 to 6. Shoots crowded, 1 to 1½ inch

$1\frac{1}{2}$ inch long, in general branching into forks. **WEEBER.**—Creeping, crowded, sometimes branched. *Leaves* pellucid, numerous, broadest at the base, pleasant green, lower ones ending in 3 sharp teeth, upper ones in 4 or 5. *Fruitst.* terminating. *Empal.* toothed, angular. *Capf.* black. **DILL.**

Woods in wet shady places. About Tunbridge, and in the West of Yorkshire. P. April.

JUNGERMANNIA *sphag'ni*. Shoots taking root, *Bog moss* simply winged, flowering from the side. Leaflets roundish, very entire, tiled, pointing one way. **DICKS.** 6.

Dicksf. 1. 10.

Shoots an inch or more in length; sometimes branched, sometimes not, bending in various directions, and here and there putting forth fibrous roots. *Leaves* roundish, brownish yellow, convexo-concave, all pointing one way, though placed in 2 rows, alternately lying on each other. *Capf.* 1 or 2, issuing from the same side of the shoot near the top or the bottom. *Fruitst.* pellucid, white, $\frac{1}{4}$ inch high. *Sheath* whitish, oblong, brownish at the top. *Capf.* small, roundish, brown; but rarely seen. Differs from the *J. polyanthos*, Linn. in the leaves being of a brownish yellow, pointing one way, and also in the fibrous roots. **DICKS.**

Marshy places, frequently adhering to *Sphagnum palustre*, near Croydon, Surrey. May.

JUNGERMANNIA *spinulosa*. Shoots upright, *triple snipt* branched. Leaves inversely egg-shaped, between toothed and thorny. **DICKS.** ii. 14.

Dill. 70. 15.

Fruetifications not hitherto discovered. **DICKS.**—Shoots upright or reclining, but not creeping; branches numerous. *Leaves* alternate, not closely set, dull green, pellucid, the upper ones smaller, with 2 or 3 teeth at the end; lower ones with more teeth. Have not found it in flower. **DILL.**

On Snowdon. **DILL.**—On the the mountains of Scotland. **DICKS.**

JUNGERMANNIA *trichomanis*. **SCOP.** 1344. *powder-headed*—Shoots simply winged. Leaflets egg-shaped, flat, very entire. Stem with (barren) flowers at the end. **LIGHTF.** 769.

Dill. 31. 5.—*Schmid. jung. f.* 17, and 18.

Shoots creeping and striking root; terminating in powdery globular substances. **SCOP.**—Branched or unbranched, forming compact patches of a beautiful shining brownish green, one shoot lying on another.

another. *Leaves* in 2 rows, minute, roundish, blunt, very entire, $\frac{1}{8}$ of a line in diameter. *Globules* terminating, sitting. POLLICH.—Creeping on the ground, 1 or $1\frac{1}{2}$ inch long. *Leaves* tender, pellucid, pale green, in pairs. Fruit-bearing branches short, the leaves alternate. Capsules or globules small, green, of short duration. DILL.

J. trichomanes. Lightf.—*Mnium trichomanes*. Linn.

Woods, hedges, and wet shady heaths.

P. April.—Oct.

swollen JUNG ERMAN'NIA *ventricosa*. Shoots simply winged, flowering from the middle. Sheath sphaeroidal. Leaves cloven. DICKS. ii. 14.

Mich. 5. 15, confessedly cop. in Dill. 70. 14.

Leaves more deeply cloven than represented by Micheli. DICKS. Woods.

straggling JUNG ERMAN'NIA *viticulosa*. Shoots simply winged. Leaflets flat, naked, strap-shaped.—

Dill. 69. 7.—Vaill. a, b, between f. 7 and f. 2.—Mich. 5. 4.

Shoots 3 inches long; branches 1 or 2 inches. Leaflets egg-shaped, the edges fringed and bent back, so that they appear convex. Fruitlet on the mid-rib, mostly towards the lower part of the shoot, and at the origin of the branches, an inch long, or more. Empal. cut into segments. Caps. roundish, black, shining. WEIS. DILL.

Shady ditch banks, and woods in wet places. About Slingford, Suffex. DILL.

P. March, April.

** Shoots winged; appendages above the leaflets.

white JUNG ERMAN'NIA *albicans*. Above doubly winged; flowering at the ends. Leaflets strap-shaped; bowed back.—

Dill. 71. 20.—Vaill. 19. 5.

Fruitlet. 2 to 3 lines long. Leaflets with appendages on the upper side. NECK.—Shoots 1 to 2 inches long, not creeping, but reclining. Fruitlet terminating. WEIS.—Forming dense patches, one shoot lying on another. Leaves 2 rowed, $\frac{1}{2}$ a line long, and $\frac{1}{4}$ broad, very entire; ending in a blunt point. Besides these larger leaves, there is another set only half the size on the upper side of the mid-rib, 1 at the base of each larger leaf. Empal. cylindrical, white, terminating. Barren stems reddish at the ends and containing minute greenish globules filled with a powder. POLLICH.—Crowded together, simple or branched; whitish when dry. DILL.

Woods and wet shady places.

P. March, April.

JUNGER-

JUNG E R M A N ' N I A *cine'rea*. Shoots creeping, *ash-coloured* doubly winged above, flowering from the middle. Sheath cylindrical. Leaves tiled, rounded. Dricks. ii. 15.

Mich. 6. 18, *cop. in Dill.* 72. 28, *C, in flower.*—*Dill.* 72. 28. *A, B, not in flower.*

Grows creeping upon other mosses. Shoots short. Leaves round, grey, very small, tiled. If immersed in water and magnified, other secondary leaflets may be found underneath these. DILL.

Woods. Bagley Wood, near Oxford. DILL.

JUNG E R M A N ' N I A *multiflo'ra*. Shoots creeping, *many flower'd* branched. Leaves alternate, in pairs, bristle-shaped, equal. LINN.—Leaf simply winged, flowering at the base. HUDS. 510.

Dill. 69. 4.

Shoots thread-shaped, $\frac{1}{2}$ to 1 inch long. Leaflets short. WEBER.—*Empal.* central, numerous, crowded, white, with 4 clefts. *Fruitst.* slender, white, long. *Capf.* large, reddish brown. DILL.

Shooter's Hill, near London. DILL.

March. HUDS.

JUNG E R M A N ' N I A *nemoro'sa*. Shoots above *wood* doubly winged; flowering at the ends. Leaflets fringed.—

Hedw. theor. 15.—*Dill.* 71. 18.—*Mich.* 5. 8.

Leaflets with appendages above the base. NECK.—Inversely egg-shaped; somewhat tiled. Leaflets broad at the base, and enveloping the mid-rib, so that there appears no interstice between the leaflets and the appendages or coloured scales placed above them. WEIS.—Plant mostly about $1\frac{1}{2}$ inch long, branched or unbranched. Leaflets oblong, numerous, green, pellucid. *Empal.* terminating, broad, at first leaning. DILL.

Woods and moist shady places in Westmoreland.

P. March, April.

JUNG E R M A N ' N I A *rep'tans*. Shoots doubly *creeping* winged underneath; taking root at the ends. Leaflets with 4 teeth.—

Dill. 71. 24.—*Schmid. jung. f.* 8. 13.

Fruitst. from the base. *Capf.* blackish, shining. DILL.—*Appendages* underneath the leaflets. NECK.—Tender, creeping, irregularly branched, limber, about 1 inch long. Leaflets very minute, ending in 3 or 4 little teeth. *Empal.* 3-sided, whitish, toothed. *Fruitst.* white, shining. *Capf.* oblong egg-shaped. WEIS. DILL.

Moist shady places.

P. Dec.—April.

curled JUNGERMAN'NIA *resupina'ta*. Shoot above doubly winged; flowering towards the base. Leaflets finely scolloped; tiled; round.—

Dill. 71. 19.

Very rarely flowers. Underneath resembling a step-ladder. Plant 2 inches long. Leaflets (if magnified) appear edged with a double fringe, with appendages on the upper side. NECK.—Stem forked, or imperfectly winged, lying one on another, rigid, brittle. Leaves in 2 rows; entire at the sides, but with 3 or more minute teeth at the end. POLLICH.—Grows crowded together; reclining. Barren plants longer than the fertile ones. Leaves roundish, appendages standing out, so that the plant has a crisped or curled appearance. Empal. mostly at the base of the shorter shoots, distended, toothed. Fruitst. near an inch high, white. DILL.

In clefts of rocks, and on turfey heaths.

P. April.

downy JUNGERMAN'NIA *Tomentel'la*. Shoots creeping, downy above. Leaves entire, very downy. EHRHART. DICKS. ii. 14.

Dill. 73. 35.

Primary branches alternate, secondary ones alternate likewise, but so closely set as to appear nearly opposite; larger and more numerous in the barren than in the fertile plants. Leaves pale green, woolly, extremely crowded, and very minute. Empal. in the angles of the branches, long, woolly, straw-coloured. Fruitst. white, pellucid. Caps. oblong, black. DILL.

Moist woods and heaths and wet mossy places near rivulets in Yorkshire, Cumberland, and Westmoreland; in a small current of water which runs through Old-fall Wood between Highgate and Muzzle Hill, about Chichester, Suffex, and Darking, Surry. R. syn. and DILL.—In the Highland mountains near Aberfeldy. DICKS.—[On a dry sandy bank on Brome Heath near Bungay, Suffolk. Mr. STONE.]

P. March, April.

trifid JUNGERMAN'NIA *triloba'ta*. Shoots doubly winged underneath. Leaflets squarish, slightly 3-lobed.—

Dill. 71. 22. A. B.—(Mich. 5. 10, is *J. angulosa*.—Dill. 71. 23, is *J. quinqueidentata*.)

Leaflets with appendages on the under side. I have never seen it in fruit. NECK.—About 1 inch long, trailing, branches distant. Leaflets with 3 to 5 shallow clefts at the end. Empal. about 2 lines long, terminating. Fruitst. very short. WEIS.—Sometimes branched, creeping. Leaves flat, green, pellucid, with three blunt teeth at the end. Not found it in flower. DILL.

Wales,

Wales. DILL.—On Crib y ddifcil near Llanberris. HUDS.

P. March, April.

JUNG ERM A N' N I A *undula'ta*. Shoots above *earied* doubly winged, flowering at the ends. Leaflets roundish, very entire, waved.—

Vaill. 19. 6.—Dill. 71. 17.

My specimen accords with Vaillant, but not entirely so with Dillenius's. *Leaves* pointing from opposite lines, expanding, near, not at all tiled, but disposed in a double row in each side, alternate, distinct, equal, those underneath not being smaller or united with those above, all slightly waved. LINN.—*Leaflets* with appendages on the upper side. NECK.—*Leaflets* roundish, convex above, concave underneath, connected by a small appendage near the rib, with the leaflet above it. *Empal.* terminating, oblong, green. *Fruitst.* white, 1 inch long. *Caps.* roundish. WEIS. DILL.

Shady places.

P. March, April.

*** Shoots tiled.

JUNG ERM A N' N I A *ciliaris*. Shoots creeping. *fern* Leaflets doubly tiled; appendages underneath, fringed.—

Dill. 69. 3.

Branches alternate, convex above, tiled with a double row of scales, and tiled with appendages underneath. *Leaflets* and *appendages* fringed, with the fringe bent back, whence its rough appearance; *upper leaves* often cloven. LINN.—*Shoots* the length of a finger, winged and branched, the branches alternate. *Leaflets* very hairy. *Fruitst.* from the forks of the branches, thick, white, pellucid, 1 to 2 inches long. *Empal.* hairy, long, straw-coloured. *Caps.* dark purple. WEIS.—*Leaves* sometimes entire, sometimes cloven at the end, alternate, elegantly fringed with hairs at the edges and at the ends, pellucid when plunged in water. It grows in tufts, upright; seldom found in flower. DILL.

J. pulcherrima. Linn. fil. Dickf. i. 7, 'on the authority of Mr. D. in fasc. ii. p. 14.—(*J. ciliaris*. Hudf. Lightf. is *J. Tomentella*.)

On heaths in England and Scotland. DICKS.

P. March.

JUNG ERM A N' N I A *complana'ta*. Shoots creeping. *flat* Leaflets doubly tiled, with little scales underneath. Branches of an equal breadth throughout.—

Curt. iv. 45.—Dill. 72. 26.—Mich. 5. 21.

Leaflets circular. *Fruit-stalks* terminating; very short. NECK.—From 1 to 2 inches long, flat, irregularly branched, adhering close to the bark of trees in broad patches; soft to the touch and flaccid when

when wet. *Fruitst.* hardly a line long, rising from the origin of the branches as well as from their extremities, out of a scaly empal. lopped at the end. *Caps.* small, black, of short duration. WEIS. DILL.—Without visible roots. Plant pale or yellowish green, tender, but hardly pellucid. *Fruitst.* solitary or in pairs. DILL.

Trunks of trees, in hedges and thickets, flourishing most in a wet situation. P. Jan.—April.

scaly JUNGHERMAN'NIA *dilata'ta*. Shoots creeping. Leaflets doubly tiled, with little scales underneath. Branches broader towards the ends.—

Dill. 72. 27.—Vaill. 19. 10.—Mich. 6. 6.—Neck. meth. 1. 3, at p. 273.

Leaflets circular, in a double row. NECK.—Leaflets convex, smaller, and shoots narrower than in the *J. complanata*.—Empal. terminating the branches, 3-cornered. NECK.—Colour dark green, or reddish. *Fruit-st.* 1 line long. WEIS. DILL.—Shoots strap-shaped, lying on one another, forming dense roundish patches. Branches distant, winged. Empal. mostly terminating, $\frac{1}{2}$ a line long. *Fruitst.* very short. *Caps.* minute, globular. POLLICH.

Trunks of trees, closely adhering to the bark. P. March, April.

wall JUNGHERMAN'NIA *platyphyl'la*. Shoots trailing; tiled underneath. Leaflets heart-shaped, pointed.—

Vaill. 19. 9.—Dill. 72. 32.—Mich. 6. 3 and 4.—H. ox. xv. 6. row 2. 44.—Happ. iii. *Jungermannia*.

Shoots very much branched. NECK.—Branches spreading. SCHOLL.—About a finger's length, growing in close patches; doubly winged. Leaflets egg-spear-shaped, tiled in a double row, with appendages underneath. WEIS.—*Fruitst.* short, lateral and terminating. WITH.—Empal. blunt, compressed, about 1 line in height. *Caps.* minute, upright, smooth, shining, yellowish. POLLICH.—Grows in large tufts on walls and trunks of trees one layer upon another, fixed only by the ends, irregularly branched. Leaves crowded, tiled, pellucid, thin, dark green, the edges and the ends turned down. DILL.

Woods on trunks of trees, and on walls. [Old walls, Bungay, Suffolk. Mr. STONE.] P. March, April.

β Leaves shorter and rounder. HALL. n. 1872. LIGHTF. 785.

Dill. 72. 33.—Mich. 6. 1.

Leaves heart-shaped, rounder than in the preceding. Mid-rib entirely covered underneath by scales. Branches at right angles to the shoot. Have not seen it in flower. DILL.

Trunks of trees. DILL.

JUNG E R M A N ' N I A *pulcher'rima*. Shoots rather *fringed* upright, crowded. Leaves egg-shaped, tiled, somewhat cloven, fringed. LINN. *fl. Meth. Musc.* 35. DICKS. 7.

Dill. 69. 3.

I have not found the capsule in English specimens. DICKS.—The most beautiful of its kind. *Leaves* concave, alternate, pointing one way, elegantly dotted, beset at the edges with jointed hairs. Differs widely from the *J. ciliaris*, which has leaves doubly tiled, and furnished with ear-like appendages underneath. LINN. *fl.*—In broad patches on the trunks of trees. *Shoots* very much branched, crowded, intangled, strap-shaped, compressed, broader and bent at the ends. *Sheaths* lateral and terminating, about 2 lines long. *Empal.* often split. WEBER.—About 2 inches long, with a few branches, from which other short alternate branches proceed. *Leaves* roundish, pointed, entire or cloven, elegantly fringed with soft hairs, alternate, without appendages, pellucid when wet. The whole plant grows crowded together, upright, the ends crooked, the colour rusty brown. DILL.

On dry heaths. Trunks of trees.

Oct.

JUG E R M A N ' N I A *tamaris'ci*. Leaflets tiled in a *tamarisk* double row; the upper ones circular; convex; blunt; 4 times as large as the other.—

Dill. 72. 31.—*Mich.* 6. 5.—*Vaill.* 23. 10.

Greatly resembles *J. dilatata*. NECK.—But the shoots are much longer, crowded and lying one upon another, more slender, more branched, branches of a uniform breadth, blunt at the ends, not closely attached to the tree on which it grows, but rather hanging down. The mid-rib is more exposed to view, and on the under side appears jointed, and covered with small scales cloven at the end. *Fruit.* terminating, very short. *Caps.* brown yellow. WEIS. DILL.—*Leaflets* very convex above. SCHOLL.—*Leaves* circular, very entire. *Caps.* very minute. POLLICH.

Trunks of trees and rocks.

P. Feb. March.

JUNG E R M A N ' N I A *va'ria*. Shoots nearly *upright* upright; tiled; pointing 2 ways. Leaflets deeply divided.—

Dill. 73. 36.—*Mich.* 5. 9.

Shoots short, stiff, brittle; frequently with green or yellowish globules at the end. *Fruit.* white, shining, 5 lines long, terminating. *Empal.* egg-shaped, with 4 teeth. *Caps.* globular, black and shining. POLLICH.—At first creeping, undivided, winged with leaves; when

when older rising up, somewhat branched, the leaves surrounding the branches. DILL.

Woods and heaths in moist shady places.

P. March, April.

**** Shoots tiled on every side. Leaflets irregularly disposed.

mountain

JUNGEMANNIA *alpi'na*. Shoots cylindrical. Leaflets egg-shaped, expanding. Empalements tiled.—

Fl. dan. 1002. 1.—*Dill.* 73. 39.

Shoots $\frac{1}{2}$ to 1 inch high, crowded together in tufts, branching into short forks. *Empal.* terminating. *Fruit.* seldom found, very short. WEBER.—One to 2 inches long; cylindrical, not brittle. *Empal.* scaly, light red, resembling the bud of the beech tree. *Caps.* dark red. DILL.

Wet rocks on Snowdon and Glyder, Caernarvonshire, and bogs on Cader Idris. DILL.—And on the mountains of the North of England. HUDS.—And of the Highlands. LIGHTF.

P. April—Oct.

braided

JUNGEMANNIA *concinna'ta*. Shoots cylindrical, somewhat compressed, closely tiled, compact. Leaves convex and concave, smooth. Flowers on fruit-stalks. LIGHTF. 786.

Dill. 73. 38, *J. julacea* is spoken of by Lightf. as the best representation of it.

Grows matted in tufts, reddish brown above, pale green below. *Stalks* $\frac{1}{2}$ of an inch high, very slender, brittle when dry, closely tiled with leaves. *Leaves* undistinguishable by the naked eye, smooth, membranaceous at the edge, always pressed to. *Fruit.* terminating, short. *Caps.* brown. LIGHTF.

Is it not a variety of *J. julacea*? HUDS. 651.

Rocks on the Highland mountains frequent.

Sept.—Oct.

crooked-leaved

JUNGEMANNIA *curviso'lia*. Shoots creeping, branched, cylindrical. Leaves tiled, roundish, taper-pointed, cloven, the ends bowed in. DICKS. ii. 15.

Dicks. 5. 7.

The points of the leaves next to the empalement upright. DICKS. Highlands of Scotland.

round

JUNGEMANNIA *jula'cea*. Shoots cylindrical. Leaflets tiled on every side; flowers on fruit-stalks.—

Fl. dan. 1002. 2.—*Dill.* 73. 38.

Brittle. *Fruit-st.* terminating. *Leaflets* pressed to. NECK.—Shoots slender, cylindrical, silky, from $\frac{1}{2}$ to 1 inch high; sometimes forked.

forked. *Leaves* so closely compressed as hardly to be observable, which distinguishes it from every other species. WEBER.—Grows in very dense tufts; shoots and branches cylindrical, and silky when fresh. Dull greyish green, and brittle when dry. *Fruifications* rare. *Caps.* small, red brown. *Fruit.* short, white, rising out of a toothed empal. DILL.

Wet rocks and by the side of rivulets on Cader Idris, Glyder and Snowdon, and the Highland mountains. [On rocks on the sides and tops of hills in Dartmoor, Devonshire. Mr. NEWBERRY.]

P. Sept. Oct.

JUNG E R M A N ' N I A *minu'ta*. CRANTZ. *grœnl.*— *minute*
Shoots upright, winged, branched. Leaflets with appendages underneath. Leaves roundish. DICKS. ii. 13.

Dill. 69. 2.

Very slender, branched. Leaflets not distinguishable by the naked eye, alternate, roundish, pellucid, in single rows. Roots very fine woolly filaments fixed to the back of the mid-rib. DILL.

Amongst moss in the Highlands of Scotland.

JUNG E R M A N ' N I A *paucifl'ra*. Shoots creeping, *fewflowered*
very much branched, thread-shaped, flowering in the middle. Leaves bowed in, deeply divided. Sheaths conical, remote. DICKS. ii. 15.

Dichf. 5. 9.

Leaves alternate, remote, cloven down to the base; segments equal, strap-awl-shaped, bluntish, concave, transparent, the interstices opaque. *Fruifications* solitary, remote. Sheaths conical. *Fruit.* as long again as the empal. Nearly allied to the *J. multiflora*, and at first sight greatly resembling it, but differs from it in the number of its fruit-stalks, &c. DICKS.

Near Croydon, growing on *Sphagnum palustre*. DICKS.—Yorkshire. Mr. TEESDALE.

JUNG E R M A N ' N I A *rupestris*. Shoots cylindrical. *rock*
Leaflets awl-shaped, pointing one way.—

Dill. 73. 40.

The whole plant very short, being about one third of the length of a pin, blackish, upright, seldom branched. LINN.—Shoots branched, dark green. Leaflets bent back. Empal. cylindrical, not tiled as in the *J. alpina*. WEBER.—Grows densely crowded together, short, naked below. Leaves very slender, reflected, dark green, blackish when dry, pointing one way. Empal. very minute, terminating,

minating, reddish, not scaly. *Fruitst.* very short. *Caps.* very small. DILL.

On moist rocks on Snowdon and Glyder, Caernarvonshire; the North of England, and the Highland mountains. [Plentifully upon rocks on the sides and tops of hills in Dartmoor, Devonshire. Mr. NEWBERRY.] P. March—Oct.

hairy JUNGEMAN'NIA *trichophylla*. Shoots cylindrical. Leaflets hair-like, equal. —

Schmid. 42. 1 to 23.—*Dill.* 73. 37.

Shoots only a few lines in length, closely surrounded by very slender leaflets, of a pale yellow green. *Fruitst.* terminating. *Empal.* long, cylindrical, cloven. WEIS.—When magnified the leaflets appear divided quite down to the base into 3 or 4 awl-shaped segments, composed of globular joints. *Fruitst.* $\frac{1}{2}$ inch long. *Caps.* black. LEERS.—*Leaves* pale green, extremely slender. *Branches* numerous, irregular. DILL.

Turfy heaths near North Brierly, Yorkshire. RICHARDSON in *Fl. Ang.* 516. P. April.

***** Stemless. Leaves simple.

broad-leaved JUNGEMAN'NIA *epiphylla*. Stemless. A little leaf growing upon a large one. —

Hedw. theor. 21. 110. 111; 22. 23.—*Schmid. jung. f.* 1, to 6.

—*Dill.* 74. 41.—*Fl. dan.* 359.—*Happ. i. jung.* 1. The figure

(a) at least copied from *Fl. dan.*—*Mich. 4. Marsilea* 1.—*Col.*

ephr. i. 331. 3, cop. in *Park.* 1314. 5.—*Mull. frid.* 2. 6 and 5.—

Leaf variously scalloped and curled at the edge, pale green, firmly fixed to the mud by fibres from its under side. WEIS.—*Fruit-stalks* hollow, 2 inches high. SCOP.—Bears its fruit in the spring, but flowers in autumn, the barren flowers appearing like dots on the older leaves, and the fertile ones in the cylindrical sheaths. *Empal.* of 1 leaf, irregular, wrinkled. *Seed-bud* globular, smooth, on a very short fruit-stalk, which is ensheathed. Lower part of the *empal.* fixed in a kind of groove. *Shaft* very short. *Threads* on the seed-bud, of no determinate number. Mr. KNAPP.—*Leaf* short, roundish, moderately broad; segments blunt, shallow, fine green, pellucid. In winter a dark green head appears upon the middle of the leaf. In spring this head breaks forth from a valve on the surface of the leaf, circular and open at the top, afterwards cut into 4 shallow segments. Out of this the *fruitst.* rises, growing rapidly to the height of $1\frac{1}{2}$ or 2 inches, white, pellucid, supporting a dark green

green globe which opens into 4 brownish and roundish segments, discharging a yellow brown powder mixed with fibres. This being done, the old leaf dies, and one or more young ones shoot out. DILL.

[Ellingham Fen, near Bungay, Suffolk, near the direction post. Mr. STONE.] P. March, April.

JUNGERMAN'NIA *furcata*. Stemless. Shoots *strap-shaped* ; branched ; the ends forked and bluntish.—

Hedw. theor. 19. 99, 100 ; 20. 101 to 109, *parts of fructification.*

—*Dill.* 74. 45.—*Vaill.* 23. 11.—*Mich.* 4. 4.

Plant hardly 1 inch long. SCHOLL.—*Leaves* flat ; greenish. *Fruitst.* seldom more than 2 or 3 lines long. *Empal.* globular. *Caps.* nearly globular, reddish brown. In a young state it is often found amongst Mosses on trees of a pale yellow. It is then very brittle, and on handling falls into a yellow powder, greasy to the touch. WEIS.—Fringed at the edge. *Empal.* and *Caps.* hairy. Both on fruit-bearing and barren plants, on the mid-rib underneath the leaves, are found hemispherical or kidney-shaped bodies, a little hairy, becoming powdery. LEERS.—In stony shady places where it thrives well, it grows in tufts, and the plants support one another nearly upright, but when scattered amongst other Mosses on trees or on the ground it creeps. *Leaves* flat, compressed, very thin, pale green ; pellucid, with a distinct vein running through the middle, more or less lobed, trifid or bifid at the end ; lobes blunt. DILL.

On the ground, on rocks, and in woods on the trunks of trees ; DILL.—and wet shady places. HUDS.—[Bungay, Suffolk. Mr. STONE.] P. April.

JUNGERMAN'NIA *multifida*. Stemless. Shoots *dwarf* with doubly winged clefts.—

Dill. 74. 43.

Leaves pale green ; clefts blunt. *Fence* at the base of the leaves, and at the edges of the segments, cylindrical. *Fruitst.* about an inch long, from the base of the leaves. NECK.—*Leaves* flat, pellucid, succulent, greasy to the touch, pale yellow green ; those without *fruitst.* the most deeply divided. Seldom exceeding $\frac{1}{2}$ an inch in length it would with difficulty be found, being mostly covered by other Mosses, did it not grow in quantities together. WEIS.—*Fruitst.* white. *Caps.* dark green, shining. DILL.

Woods and moist shady places. Cane Wood, near Highgate, and Charlton, Kent, DILL.—and about Hampstead. HUDS.

P. April, May.

jagged JUNGERMAN'NIA *pin'guis*. Stemless. Leaf oblong, indented, greasy.—

Schmid. 35.—Dill. 74. 42.—Mich. 4. *Marfilea* 2.—Pluk. 42. 2.

—Vail. 19. 4.

Fertile plant smaller and more jagged, the others growing close together, and supporting each other become upright. DILL. in *R. syn.* 110.—*Fruitst.* with a sheathing empal. white, pellucid, from 1 to 3 inches high. *Capf.* egg-shaped, black, shining, opening with 4 valves. Other leaves of a longer form not bearing capf. are set with green warty substances about the middle. WEIS.—*Empal.* at first inconspicuous, afterwards long, tubular, entire, pale green. *Fruitst.* white, 1 to 2 inches long. DILL.—*Fruitst.* from the hollow indentures of the leaf. *Empal.* long, cylindrical.

Marthy places and Bogs. [Bungay, Suffolk. Mr. STONE.] April.

shining JUNGERMAN'NIA *pufil'la*. Stemless. Shoot mostly divided into winged clefts. Lobes tiled. Empal. plaited.—

Dill. 74. 46.—(Schmid. 22, and Hedw. *theor.* 18. 89 to 92, are *J. angulosa*.)

Stemless. *Leaf* simple, very short, slightly divided into winged clefts. Lobes tiled. *Empal.* bell-shaped, plaited on one side. *Head* before it expands black. LINN.—*Leaf* deeply divided into strap-shaped lobes, which again are sometimes forked. Lobes blunt, thick, flat, ascending. *Empal.* often in pairs. LEERS.—*Fruitst.* about $\frac{1}{2}$ an inch long. POLLICH.—*Capf.* round, black, shining; valves roundish, finely toothed. DILL.

Shady lanes and banks, and wet places on heaths near Woolwich. DILL.—Wray Wood near Castle Howard, Yorkshire. HUDS.

P. March to June—Oct.

germander-leaved JUNGERMAN'NIA *sinua'ta*. Stemless. Shoot with doubly winged clefts, flat, indented, open, the ends with two unequal lobes. DICKS. ii. 16.

Dill. 74. 44. *B. not in flower*.—Mich. 4. 3, *cop. in Dill.* 74. 44. *A in flower, is thought by Dill. to be the same.*

Leaves permanent deep green, thin, pellucid, flat, cut into winged segments. DILL.—Seems to be prolific. Leaves lying one upon another, in which way it appears to increase till it has covered a large patch of rock. When first taken from the water it has a strong, and to me an agreeable scent. I have never found fructifications, though I have examined it at different times of the year. I suspect they have never yet been found in England. Mr. WOOD.

At

At the head of Elm Cragg Well, under Bell Bank, near Bingley, Yorkshire. DILL. [Mr. Wood.—Pretty plentifully at the head of a spring in Middleton Wood, 2 miles from Leeds, on rocks and stones entirely under water. Mr. Wood.]

1314. TARGIO'NIA.*

EMPAL. of 2 valves: nearly globular.

CHIVE fitting, bell-shaped, at the bottom of the cup.

ESS. CHAR. *Empal.* 2 valves, inclosing a globe.

CUP inflated, containing in its bottom a

CAPSULE globular, of many seeds. DICKS.

TARGIO'NIA *hypophylla*. Fruifications solitary; dotted cups open. DICKS.

Mich. 3, *Targionia*; part of the plate cop. in Dill. 78. 9.—Buxb. 1.

61. 4.—Col. *ecphr.* 1. p. 331. f. 333.

Not larger than the little finger nail. Green, not pellucid; rough with white rising dots. Leaf heart-spear-shaped, at first green, afterwards dark purple, blackish underneath. *Fruification* at the end, on the under side, the size of a vetch. Cup black; opening, containing the fruit covered with a yellowish skin, and filled with a yellowish pulp which rubs to powder between the fingers, and stains them. COLUMN. *ecphr.*

Heaths and sides of ditches near Dawlish, Devonshire.

P. March—May.

TARGIO'NIA *sphærocarpus*. Fruifications *reticulated* crowded together. Cups perforated at the ends. DICKS. 8.

Mich. 3. *Sphærocarpus*; cop. in Dill. 78. 17.

Cup reticulated like the leaf of a *Jungermannia*. *Capsf.* fitting; brownish when ripe. DICKS. 8.—In great plenty in clover fields on a sandy loam, the first year. The thick tops of this plant have much the appearance of some of the smaller Mosses, and have doubtless on that account been overlooked, but they have a glaucous hue which instantly announces them to the eye accustomed to observe them. Mr. WOODWARD.

[Clover fields Heyden and Norwich. Mr. BRYANT.]

* The *Targionia* belongs either to the Genus *Jungermannia*, or *Marchantia*. SCHNEPER de *Targion*.—HEDWIG, *Theoria*. p. 107.

1315. MARCHAN'TIA. Livergreen.

Ess. CHAR. Barren Flower. Empal. target-shaped, covered underneath. Bloss. of 1 petal. Tips with many clefts. Fertile Flower. Empal. sitting, bell-shaped, with many seeds.

Obs. In some species the barren and fertile flowers are upon distinct plants.—For a more satisfactory account of the parts of fructification see page 26.

star-headed

MARCHAN'TIA polymor'pha. Common empal, with 10 clefts.—

α LINN.

Schmid. 29. 1 to 30.—Hedw. theor. 24. 127 to 131, parts of fructification.—Dill. 76. 6. E, F.—Mich. 1. 1 and 3.—Lon. i. 219. 2.—Fuchf. 473, (misprinted 476) cop. in Trag. 523.—Math. 1038, imit. in Lob. obs. 646. 1, which repr. in ic. ii. 246. 1, Dod. 473. 2, and Ger. em. 1565. 3; and again imit. in Ger. 1376, which repr. in Math. a. C. B. 732.—Garf. 300.

A yellowish substance resembling a lock of wool proceeds from the capsules, appearing to move within them whilst the seed is falling out. LINN.—From 3 to 5 inches long, 1 broad, and irregularly lobed; dark green, shining. Fruitst. in the angles of the lobes, 1 to 3 inches high. Capsf. greenish, dividing into 8 or 10 segments. On the upper surface we here and there observe certain glass-shaped conical cups, on short pedicles, with a wide and scolloped margin, WEIS.—which inclose about 4 little bodies, very finely ferrated at the edges. POLLICH.—In figure somewhat resembling an oak leaf; surface reticulated. DILL.

In wet places both shady and open. On wet shady walks, and on the sides of wells and springs.

P. June—Aug.

β Plant smaller; not shining.

Dill. 77. 7.—Mich. 1. 2.—Lob. obs. upper right hand fig. repr. in Lob. ic. 246.—J. B. iii. 758. 2.

Leaves smaller and shorter than in α, fine green, not shining, not reticulated; densely compacted one upon another. DILL.

On the north side of walls, and stones, and in shady areas behind houses. DILL.

γ Stars with 8 clefts.

July, Aug.

Mich. 1. 5.

MARCHANTIA cruciata. Capsule with 4 cross-headed divisions; segments tubular.—

Dill. 75. 5.—Mich. 4, *Lunaria*.—Buxb. i. 62. 2.

Crowded in its growth, sometimes branched, new leaves proceeding from the ends of the old ones, from $\frac{1}{2}$ to 1 inch long, pleasant green, not pellucid, not veined. *Empal.* with 4 and sometimes 5 divisions. DILL.

Shady courts and garden walks.

P. June—Oct.

MARCHANTIA hemisphaerica. Capsule with 5 clefts; hemispherical. *Empal.* none.—

Schmid. 34.—Dill. 75. 2.—Mich. 2. 2.—Fl. dan. 762.—Buxb.

ii. 5. 1.

Head hemispherical, with 5 globules underneath. *Globules* bursting, and pouring out dust. LINN.—*Leaf* divided into unequal segments, lobes scolloped; upper surface greenish, with innumerable dots. NECK.—*Leaf* from $\frac{1}{2}$ to $1\frac{1}{2}$ inch long, concave, edge waved and scolloped; at first simple, cloven when older, and a young one issuing from the end. *Fruit-stalks* an inch high, brownish, naked. DILL.

Sides of rivers and wet ditches, and wet rocks. P. April, May.

MARCHANTIA conica. Capsule somewhat conic egg-shaped, with 5 cells.—

Schmid. 31.—Hedw. theor. 25. 134 to 136.—Mich. 2. 1.—Dill.

75. 1.—Vaill. 33. 8, barren plant.—Fl. dan. 274, fertile plant.

—Col. ecphr. 331. 1, cop. in Park. 1314. 4.

Leaves pleasant pale green, greasy to the touch, creeping on the ground, dotted on the surface, producing new leaves from the ends of the old ones. DILL.—*Fertile Flowers* on the leaf, resembling warts. LINN.—*Fruit-stalks* 3 or 4 inches high, transparent, very tender. *Commom empal.*; 5 cells bursting at the base, often varying in number from some proving abortive. *Seeds* when ripe hanging out attached to threads, having the appearance of the woolly substance which contains the seeds of the Lycopodons. Micheli has described the barren as fertile and the fertile as barren flowers in all these plants. Mr. Woodw.—*Leaves* in large clusters, indented, blunt, green, with several white tubercles.

On the ground on the banks of brooks in shady places, and sometimes on rocks. DILL.—[Very common, but I have only found it in fruit in one place on the shady banks of a ditch at Ditchingham, Norfolk, where I have observed it for some years.

Mr.

CRYPTOGAMIA.

Mr. WOODW.—In a wet ditch near Belfey Bridge, Ditchingham.
Mr. STONE.] P. March, April.

mushroom-headed MARCHANTIA *androg'yna*. Common empal. entire, hemispherical.—

Dill. 75. 3. A. C.—Mich. 2. 3, *cop. in* Dill. 75. 3. B.

Shoots strap-shaped, forked, dotted; often notched at the end; mid-rib blackish. WEBER.—*Fruitst.* terminating, $\frac{1}{2}$ to 1 inch high. Plant green, strap-shaped, smooth, flat, in forked divisions. DILL.

Under wet rocks on the mountains of Scotland. DICKS. ii. 17.

1316. BLA'SIA.

ESS. CHAR. Barren Flower? Empal. cylindrical, full of groins.

Fertile Flower? Empal. naked. Fruit roundish, sunk in the leaves, with many seeds.

Obs. Ought not the Barren Flower to be regarded as the Fertile one, and vice versa? LINN. *gen. pl.*—For a more satisfactory account of the parts of fructification see p. 28.

dwarf BLA'SIA *pumilla*. —

Schmid. *blas.*—Hedw. *theor.* 27. 156 to 164, *plant and parts of fructification.*—Dill. 31. 7.—Mich. 7. *Flasia.*—Fl. dan. 45.

Seeds when ripe flowing out of a cup-like cylindrical vessel, so small that their figure is not discernible to the naked eye. LINN. *succ.* n. 1053.—Leaves in a circle, from 1 to 2 inches in diameter, deep purple at the base, green at the edges, jagged. Grows in a circular form in shady places. Leaves thin, green, pellucid, with whitish veins towards the base, waved at the edge, cloven at the ends. *Fruitst.* 1-8th of an inch high, several rising in succession from near the ends of the leaves. DILL.

On the sides of ditches and rivers in a sandy soil. HUDS.—At the breaking of Medlock River Bank at Feasington Wood between Garret and Knotmill, about a mile from Manchester. HARRISON *in* Dill. 238.—Near Halifax. BOLTON.—On Hounslow Heath. HUDS. P. Aug.—Nov.

1317. R I C ' C I A.

EMPAL. none; except a hollow bladder within the substance of the leaf.

BLOSS. none.

CHIVE. *Tip* cylindrical; sitting on the seed-bud; opening at the end.

POINT. *Seed-bud* turban-shaped. *Shaft* thread-shaped; perforating the tip.

S. VESS. globular; with 1 cell; crowned with the shrivelled tip.

SEEDS many; hemispherical; on little foot-stalks. *From the observations of Schreber. LINN.*

ESS. CHAR. [a repetition of the generic character.]—
For a more satisfactory account of the parts of fructification see page 29.

R I C ' C I A *min'ima*. Leaves smooth; deeply divided; *small* pointed.—

Dill. 78. 11.—Mich. 57. 6, much magnified.—(In Schmid. 45. 3, the ends of the segments are blunt.)

Shoots hardly a line in breadth, generally forked, entire and pointed, or else notched at the end. In the substance, and towards the base of the leaf, in the month of October we may observe greenish globules, changing to brown and then to black. WEBER.

On Black Heath near Greenwich. DILL.—In places that have been overflowed. HUDS. A. Nov. Dec.

R I C ' C I A *glau'ca*. Leaves smooth, channelled, with *marsh* 2 lobes, blunt.—

Schmid. 44. 1.—Hedw. theor. 29. 165 to 174.—Vaill. 19. 1.—Fl. dan. 898. 1.—Mich. 57. 4.—Dill. 78. 10.—Buxb. ii. 5. 5.

I have frequently observed black spots immersed in the substance of the leaves, which are what Micheli has described as capsules full of seeds, and which has been since clearly ascertained by Hedwig. Mr. WOODWARD.—*Leaves* small, the under side firmly fixed to the ground, adhering at the base to each other, deeply divided, POLLICH.—whitish green, thick, greasy, very smooth, broadish, furrowed on the upper side, frequently forked; segments blunt. WEBER.—Growing in a circular form. *Leaves* thick, issuing from a centre, often cloven. Roots fine black fibres from the under surface of the plant

plant which floats on the water. RAY. *hist.*—I have never seen it on the water, but in roads and wet corn-fields both in spring and autumn. DILL.

Sandy moist heaths. [In the same situations, and usually growing with *Targionia Sphærocarpos*, and at the same time. Mr. WOODWARD.—In clover stubbles near Bungay, Suffolk, frequent. Mr. STONE.] A. Oct.—April.

floating R I C ' C I A *flu'itans*. Leaves forked; strap thread-shaped.—

Vaill. 19. 3.—Dill. 74. 47.—Mich. 4. 6.—Pet. *musf.* 2. 253.—Fl. dan. 275, ill done. The magnified figure represented as fringed.

Not having myself seen its fructifications, it is still a doubt whether it really belong to this genus. LINN. *succ. n.* 1056. — Floating in stagnant water; brown green in spring, pure green in summer. DILL.

Ditches and sides of pools.

P. Jan.—Dec.

fringed R I C ' C I A *na'tans*. Leaves inversely heart-shaped; fringed.—

Dill. 78. 18.

The edges of the leaves are not really fringed, but assume that appearance in consequence of their sending out fibrous roots. WEBER.—About $\frac{1}{2}$ inch long. Fringe sometimes white. SCHOLL.—Leaves sometimes only inversely egg-shaped, and without any notch at the end; entire at the edge, bright green. WEBER.—Very nearly allied to *Targionia hypophylla*. HUDS.

Pools about Hadley, Suffolk. BUDDLE in Dill. 537. [Sawston Moor, Cambridgeshire. Mr. RELHAN.] A. Aug.—Oct.

shrub-like R I C ' C I A *fruticulo'sa*. Leaves upright, compressed, variously branched. MULL. *fl. dan.* xv. 6.—Branches upright, forked, awl-shaped. DICKS. 8.

Fl. dan. 898. 3.

Its habit that of *Jungermannia furcata*. Colour verdigris, or greenish blue. DICKS.

On the bottom of the trunks of trees among moss.

1318. ANTHO'CEROS.

ESS. CHAR. *Barren Flower.* Empal. sitting, cylindrical, entire. Tip awl-shaped, very long, of 2 valves.

Fertile Flower. Empal. with 6 divisions. Seeds 3.

OBS. Divisions of the empal. sometimes only 4, and then there are but 2 seeds. LINN.—The reader is desired to refer to page 28, for a better idea of the fructification.

ANTHO'CEROS *punctatus*. Leaves undivided, dotted indented, dotted.—

Dill. 68. 1.—Mich. 7. 2.—Fl. dan. 396.—[Hedwig's figures of *A. lævis* 27. 144 to 152; and 28. 153 to 155, equally well represent the fructification of this. Mr. WOODWARD.]

Caps. and Fruitst. from 1 to 3 inches long, spreading wide in shady places. *Leaves* short, scolloped, jagged, thin, pellucid, deep green. *Fruitst.* green, numerous, sheathed at the base. The whole plant turns black when dried in paper. DILL.—*Leaves* deep green, crisp, resembling *Jungermannia pinguis*. *Fruitst.* simple, from a lopped sheathing empal. *Caps.* at the end of the fruit-stalk; valves 2, bursting. *Seeds* adhering to a columnar receptacle. Micheli has described the barren as fertile, and the fertile as barren flowers. Mr. WOODWARD.—Dots on the leaves black. WEBER.

On heaths in moistish shady places. [Ellingham fen, Bungay, Suffolk, near the direction post. Mr. STONE.—Brome, Norfolk, on the borders between the high and boggy ground. Mr. WOODWARD.]

P. August—April.

1319. LI'CHEN.

1319. LICHEN.

Ess. CHAR. *Barren Flowers.* Receptacle roundish, flattish, shining.

Fertile Flowers. A meal sprinkled on the leaves. — OBS.

For a better idea of the mode of fructification see page 29.

This Genus is sub-divided into the

- A. TUBERCLED; or those which consist of a ground or thin crust studded with convex receptacles, or tubercles.
- B. SAUCER-LIKE; a crust studded with concave receptacles resembling little bowls or saucers.
- C. TILED; leaves spreading flat, and closely adhering to the substance on which they grow.
- D. LEAFY. Leaves loose from the substance on which they grow.
- E. LEATHER-LIKE. Of a substance resembling leather.
- F. SOOTY; adhering to the substance on which they grow, only in one point; and the surface as if sprinkled with foot.
- G. GLASS-SHAPED. Receptacles expanding into the form of a drinking glass.
- H. SHRUBBY. Shooting into branches resembling a shrub.
- I. THREAD-LIKE. Shooting into long thread-like branches. LINN.

A. TUBERCLED. *Crustaceous, studded with convex Tubercles.*

black and white LI'CHEN *atro-al'bus.* Ground black, with black and white tubercles mixed together. —

Jacq. coll. ii. 14. 1.

It is difficult to say which colour forms the crust. LINN.—*Crust* wide spreading, thin, firmly adhering, mealy, rough, black, thickly set with very small sub-sphaeroidal Tubercles, of a grey white colour. JACQ. coll. ii. 185.

On rocks, and often on peat earth.

P. Jan.—Dec.

greenish LI'CHEN *atro-virens.* Ground green, with a black border, and black tubercles.—

Hoffm. lich. 17. 4.—Jacq. coll. ii. 14. 2.

Tubercles

Tubercles small, of a yellow-greenish colour, crowded, so that the whole surface appears of a yellowish green, bordered by a black margin. LINN.—*Crust* hardly discernible on a slight inspection, inseparable, blackish, set with innumerable minute yellowish dots. When magnified a blackish wart is found attached to each of the yellow particles, and other warts scattered on the crust. The smallness of the granulations and the absence of distinct lines distinguishes it from the *L. geographicus*. HOFFMAN.—*Crust* very thin, truly mealy, black. *Tubercles* sitting, lentil-shaped, very small, yellowish watery green, smooth, without any rising or different coloured border. JACQ. coll. ii. 186.—I can see no reason for separating it from *L. geographicus*. Mr. WOODWARD.

On rocks, Yorkshire.

P. Jan.—Dec.

LI'CHEN *betuli'nus*. Ground white, with a central *birch* tubercle of the same colour. HUDS. 525.

Crust nearly $\frac{1}{2}$ inch diameter, circular, thin, fibrous. *Tubercle* solitary, hemispherical, nearly of the size of a hemp seed. HUDS.

On the trunk and branches of the Birch. A. Sept.—April.

LI'CHEN *byssoides*. *Crust* mealy. *Tubercles* on *brown* fruit-stalks, somewhat globular. LINN.—*Crust* brown. *Tubercles* globular, brown. HUDS. 527.

Dill. 14. 4.

Crust wrinkled, very thin. *Tubercles* broad, depressed, wrinkled. DILL.

On rocks near Bishop's Castle, Shropshire. DILL.—On the bark of trees. HUDS.

P. Jan.—Dec.

β HUDS.—Dill. 14. 5.—R. syn. 1. 3.—Willd. 7. 20.

Tubercles hard, uniform, livid reddish colour; on whitish pedicels. DILL.

On the bark of trees. HUDS.—[I have the true one growing on a horse's hoof. Mr. RELHAN.]

LI'CHEN *caeruleo-nigricans*. Ground bluish. *Tubercles* blackish. LIGHTF. 805. HUDS. 652.

(Dill. 82. 2, is cited by Lightf. but Mr. Dickson assures us after an examination of the Dillenian specimens that it is *L. leucophaeus*.)

Tubercles nearly sitting and greenish when young, on pedicels and bluish when more advanced in growth, and blackish when old. RELH.

A variety of *L. atro-albus*. BOLT 120. (*L. caeruleo-nigricans*. Relh. n. 847. is *Spharia glauca*.) BOLT.

On

On the highland rocks, but not common. LIGHTF. 805. [Norfolk and Suffolk. Mr. WOODW.] P. Jan.—Dec.

dyers LI'CHEN *calca'reus*. Ground clear white, with black tubercles.—

Dill. 18. 8.—Mich. 54. ord. 37. 7.

Doubtful whether distinct from *L. sanguinarius*. Mr. WOODW.—Hard, stony, firmly fixed to the rocks, gritty when chewed, rather rough, cracked, set with minute white eminencies, white within, thickness of half a straw's breadth. Tubercles rarely found, scattered, black, not bordered. DILL.

On most of the rocks of Glyder mountain, Caernarvonshire. DILL.—On limestone rocks in the North of England and Wales. HUDS.—On the Pentland Hills. LIGHTF.—And on old walls. RELH. Jan.—Dec.

This species is so peculiar to limestone rocks, that wherever that stone occurs among others, it may be distinguished at the first view by this plant growing upon it.—When dried, powdered and steeped in urine it is used to dye scarlet, by the Welch and the inhabitants of the Orkneys. The colour is said to be very fine.

bald LI'CHEN *cal'vus*. Between leprous and crustaceous, whitish, with fine black pores. Tubercles cushion-like, scattered, smooth, thinning, dark tawney. DICKS. ii. 18.

Dicks. 6. 4.

Crust thinnish, extended, smoothish, dotted with numerous fine pores of different sizes. Tubercles conspicuous, rather loosely scattered, of the size of mustard seeds. DICKS.

Rocks in mountainous parts of Scotland.

hornbeam LI'CHEN *carpi'neus*. Ground ash-coloured. Tubercles whitish, wrinkled.—

Dill. 18. 11. C. D?

On the bark of hornbeam beech and ash. HUDS.—[And lime trees. Mr. HOLLEFEAR.] P. Jan.—Dec.

grey LI'CHEN *cine'reus*. Ground with black tubercles edged with white.—

Hoffm. enum. 4. 3.—Jacq. coll. ii. 14. 5. b.

Crust rough, stony, varying much in thickness, grey white. Tubercles convex, black, sitting, a little raised at the edge, surrounded by a white border, rather raised and scolloped when old. JACQ. coll. ii. 184.

Rocks and larger stones.

P. Jan.—Dec.

LI'CHEN

LI'CHEN *coccin'eus*. Crust mealy, greenish brim-
stone coloured. Tubercles immersed, very red. Dicks. 8.

Dicks. 2. 1.—(In Hoffm. 6. 5, the saucers are not immersed.)

Differs from *L. ventosus* in the crust being mealy, and not warty, hard and smooth, and in the tubercles being immersed; of a very bright red with mealy edges. Dicks.

On the stones of Stone Henge, Wiltshire.

LI'CHEN *confluens*. Crust whitish, or ash-coloured. *confluent*
Tubercles very black, large, convex, at last confluent.
WEBER. 108. n. 229.

Web. 2.—Hoffm. lich. 19. 1.

Crust grey, a line or more in thickness, wide spreading, cracked, white when broken. Warts very black, coalescing, so as often to cover the whole of the crust. HOFFMAN.

Variety 1. Surface reticulated.

Mich. 54. ord. 37. 7.

Rocks, England. Dicks. 9.—Scotland. Dr. J. E. SMITH.

LI'CHEN *coral'linus*. Branched, cylindrical, coral
bundled, level topped, very much crowded, white.—

Jacq. coll. ii. 13. 2.—Hoffm. enum. 4. 2.—(Dill. 17. 36, is certainly a different plant.)

Similar to *L. calcareus*. Crust very thick, and when broken appearing composed of threads resembling coral; the ends rounded, without tubercles. LINN.—Is it not a variety of *L. tartareus*? HUDS.—Weber's description good. Mr. WOODWARD.—Crust thick, white, broad spreading on the rocks, appearing as if composed of small branches, and when broken the branches appear distinctly, their tops forming the surface of the crust. Tubercles only on the old specimens, hardly visible to the naked eye, a little hollowed. Besides these tubercles there are minute convex black dots on the crust. WEBER.—Crust a line in thickness, snow white, greyish with age, bearing on its surface little pillars like coralline, $\frac{1}{2}$ a line high, convex at the ends. JACQ. coll. ii. 180.

Rocks, stony places, and mountainous heaths in Wales, the North of England, and in Scotland.

P. Jan.—Dec.

LI'CHEN *ericetorum*. Ground clear white. Tuber-
cles flesh coloured. *heath*

Hoffm. enum. 8. 3.—Dill. 14. 1.—Mich. 59. ord. 35.

Tubercles convex, on foot-stalks, resembling minute Agarics. LINN.—Sitting, and on foot-stalks. HUDS.—Crust granulated, rough, spread wide, grey green in moist, white in dry situations and seasons. DILL.

Turfy

Turfy heaths, sides of peat bogs, gravel pits and on banks.

P. Jan.—Dec.

β Tubercles fitting, flat.

Hoffm. 8. 1.—*Fl. dan.* 472. 4.

Crust thinner, more compact, with smaller granulations. *Tubercles* perfectly fitting and in some measure immersed in the crust. Mr. WOODWARD.

L. elveloides. Weber 186. Mr. WOODWARD.

beech LI'CHEN *fagin'eus*. Ground white. Tubercles white, mealy.—

Hoffm. enum. 2. 4.—*Mich.* 53. 2 and 1.—*Dill.* 18. 11. A. B.

At first powdery, when older granulated. *Tubercles* nearly flat, white, with a thin border. DILL.

On the bark of the Beech and Hornbeam, &c. P. Jan.—Dec.

wall LI'CHEN *fusco-a'ter*. Crust brown. Tubercles black.—

Jacq. coll. ii. 14. 3.

Crust rough, mealy, thin, hardish, closely adhering, dirty obscure grey. *Tubercles* lentil-shaped, convex, black, not bordered with a different colour. *JACQ. coll.* ii. 231.

On rocks and stones.

P. June—Dec. HUDS.—Jan. Dec. RELHAN.

β Tubercles black. Crust none. Scop. p. 364.—Weber p. 191.—Hagcn. p. 49.

On soaking it in water some very fine branny flakes separated from the indurated clay on which it grew. WITB.

[On a mud wall. Specimen from MAJOR VELLE. — On rocks in the North. Dr. ALEXANDER.]

map LI'CHEN *geograph'icus*. Ground yellowish; with black lines resembling a map.—

Hoffm. enum. 3. 1.—*Dill.* 18. 5.—*Fl. dan.* 472. 3, probably from a specimen turned whitish by age.—(*Fl. dan.* 468. 1, is a different species.)

Crust orange-coloured, brittle, marked with black. *Tubercles* or prominent lines of the same colour. Grows on Granite and other compound stones, and is one of the few British vegetables that can bear the keen air of Skiddow's top. Mr. GOUGH.—*Crust* very thin, irregular in shape, yellow, hardly separable from the stones on which it grows, marked with distinct, rising, black lines dividing into compartments. *Tubercles* black, small, but varying in size, not bordered. DILL.

Rocks

Rocks in the North of England; Steiperstone, and Pentir; Scotland. [In the North of England in vast patches sometimes spreading on a smooth rock 3 or 4 feet square. Mr. Woodw.] P. Jan.—Dec.

LI'CHEN *granifor'mis*. Ground whitish, granulated. *graniform*
Tubercles black. HAGEN 47.

Hagen 1. 2.

Crust stony, composed of minute granules, agglutinated in lines like the fibres of wood. *Tubercles* black, rather larger than the particles forming the crust. HAGEN.

On pales, and old willows. DICKS. 10.

LI'CHEN *immer'sus*. WEB. 188. — Tubercles im-*funct*
mersed as it were in the stone, black. HALL. 2076.

Hoffm. lich. 12. 2 to 4.

Crust a white spot, scarcely distinguishable from a calcareous stone; in some instances mealy, in others white as milk; often intersected by black lines; marked with minute black hollow dots. *Warts* immersed in the substance, small, black, roundish, flat; at length convex, and escaping from the stone leaving a cavity. HOFFM.
—*Crust* sometimes greenish. WEBER.

On pieces of chalk. RELH. n. 1026. — On ragstone and limestone long exposed to the weather. WITH. P. Jan.—Dec.

LI'CHEN *lac'teus*. Ground white. Tubercles of *white*
the same colour, hemispherical. —

Hoffm. enum. 4. 6.

On rocks and stones. HUDS. 526.

P. Jan.—Dec.

LI'CHEN *musco'rum*. Crust hoary. Tubercles black, *moss*
connected. —

Relh. at p. 424.

Crust mealy, friable, grey or greenish. *Tubercles* sometimes flat-tish when dry, otherwise convex, shining, black, numerous, large, turban-shaped when old. WEBER.

On Mosses. [On heaths. Mr. WOODWARD.—Gogmagog Hills. RELHAN.] P. Jan.—Dec.

LI'CHEN *ni'ger*. Ground black. Tubercles round- *black*
ish, black. —

Hoffm. enum. 3. 6, ill done, the tubercles represented as if white.

Crust granulated, hard, dry, very widely spreading. *Tubercles* convex, of the size of mustard seeds. HUDS.

Rocks and large stones about St. Ive's, Cornwall, plentifully.
 [Rocks about Kirkby Lonsdale, Westmoreland. Dr. J. E. SMITH.]
 P. Jan.—Dec.

eyed **LI'CHEN** *ocula'tus*. Crustaceous, rough, with fungous papillæ, white. Tubercles sitting, or on foot-stalks, black. DICKS. ii. 17.

Dicks. 6. 3.

Crust elevated into short papillæ set very close together, both simple and branched. *Tubercles* growing on the crust as well as terminating the papillæ and branches, sometimes flat and depressed, sometimes convex. DICKS.

Rocks and stones, Scotland.

Oeder's **LI'CHEN** *Oede'ri*. LINN. *the Son*.—Crustaceous, rough, red. Tubercles black. OEDER *fl. dan.* viii. 8.—Leprous-crustaceous, cracked, rusty-red. Tubercles crowded together, growing in the substance of the crust, of different shapes, black, with an imperfect border. DICKS. ii. 17.

Hoffm. lich. 19. 2.—*Fl. dan.* 470. 1.—*Hoffm. lich.* 19. 3.

Mr. Dickson cites *Fl. dan.* 470. 1; which agrees with HOFFMAN 19. 3. but from his specific character it would rather seem that his plant is the variety figured by Hoffman 19. 2, as quoted above. *Crust* half a line thick, cracking into small partitions when dry, colour of rusty iron. *Tubercles* numerous, sometimes crowded, blue-black, encompassed with a narrow margin, shining when wet, flat, but convex and perforated at the top when old. HOFFMAN.

Rocks and stones in Scotland.

pierced **LI'CHEN** *pertu'sus*. Ground with smooth warts, set chequer-wise, and pierced with 1 or 2 cylindrical holes.—

Dill. 1. 8. 9.—*Jacq. coll.* ii. 13. 3.—*Fl. dan.* 766.—*Bolt.*

126.—*Hoffm. enum.* 3. 3.—*Wieg.* 2. 15.—*Fl. dan.* 468. 2?

—*Mich.* 52. *ord.* 32 to 56. 2, *Lichenoides*: in its earliest stage.

—*Hag.* 1. 3.

Ground leprous, white, thin, but where it produces fructifications thick, cloven into angular warts. LINN.—*Crust* thin. *Tubercles* innumerable, unequal, wrinkled, but smooth to the touch, grey green, hollow within, opening at the top with one or more apertures, corresponding with the number of cavities in the substance. DILL:

L. verrucosus. Hudf. ed. i. 445.

Banks of trees, rocks, and walls.

P. Jan.—Dec.

LI'CHEN

LI'CHEN *quer'neus*. Crust yellowish, with a tinge *oak* of brown. Tubercles nearly immersed, black. DICKS. 2.

Dicksf. 2. 3.

Crust growing irregularly to the bark of trees, composed of granules of a pale yellow. *Tubercles* convex, unequal, which from the risings of the crust sometimes seem as if immersed. Very much resembling a *Byffus*, but its fructification proves it to be a Lichen. DICKS.

—*Crust* following the sinuosities of the bark, without any defined margin, composed of microscopic granules of a dirty cream colour. *Tubercles* rather rare, minute, seldom so large as the smallest pin's head, blackish, irregularly dispersed. MR. WOODWARD.

On the trunks of oaks. [Frequently in patches of considerable extent, seldom more than 3 or 4 feet from the ground. MR. WOODWARD.] P. Jan.—Dec.

LI'CHEN *ru'fus*. Crust greenish. Tubercles *brown* mostly on fruit-stalks, flattish, brown. HUDS.

Hoffm. enum. 8. 4.—*Dill.* 14. 2.

No proper crust for its base, but numerous, small, whitish leaflets, from whence arise grey green pedicles, supporting largish pale brown tubercles. DILL.

Heaths and ditch banks. Hampstead Heath. DILL.

A. Oct.—March.

LI'CHEN *rugo'fus*. Ground whitish, diversified *wrinkled* with simple black lines and dots, set thick together.—

Dill. 18. 2.—*Hoffm. enum.* 2. 5.

Crust very thin, white, with numerous black spots and lines. DILL.

Common on the bark of trees.

P. Jan.—Dec.

LI'CHEN *rupic'ola*. Ground whitish. Tubercles *rock* pale, with white brims. LINN.—*Sometimes greenish, and without brims.* LINN.

Hoffm. enum. 6. 3.—*Hoffm. lich.* 22. 1 to 4.

Ground very thin. *Tubercles* sometimes somewhat convex, greenish, giving to the plant a different appearance. LINN.—*Crust*, if any, very thin, white or greyish. *Warts* numerous, some with a thick border and a small cavity in the middle, others nearly flat, irregular and angular, from their compressing one another, livid in the center, others again raised, surrounded spirally twice or thrice with a white or grey border, and hardly any central part. HOFFMAN.

On limestone rocks.

P. Jan.—Dec.

black knobbed

LI'CHEN *sanguina'rius*. Ground greenish, inclining to ash-colour. Tubercles black.—

Weig. obs. 2. 13.—*Hoffm. enum.* 5. 3, n. 4, 4, 4, 4.—*Dill.* 18. 3.

Ground very thin, somewhat ash-coloured. *Tubercles* somewhat globular, large, not glossy; brim imperfect, angular, not membranaceous. LINN.—When on rocks, rough and tessellated. Linnæus says that the *tubercles* when broken are red within, which I have sometimes found to be the case when growing upon rocks. LIGHTF.—And sometimes though rarely when growing upon trees. Mr. WOODWARD.—Crust grey green on trees, whiter on stones, greener, thicker, and rougher on the ground. *Tubercles* from the size of a poppy seed to that of millet, without a border. DILL.

Rocks, walls, bark of trees, and turf heaths.

P. Jan.—Dec.

lettered

LI'CHEN *scrip'tus*. Ground whitish, with black branching lines resembling written characters.—

Mich. 56, *Lichenoides* 3.—*Hoffm. enum.* 3. 2, a. c. d.—*Dill.* 18.

1, and 55. 9, being the ground on which a *Bryum* is depicted.

Crust whitish, very thin, marked with various black lines like Arabic characters, by which it is readily distinguishable. DILL.

On elms and oaks.

P. Jan.—Dec.

α LIGHTF. 800.—Frustrifications large, black, in high relief, of no regular figure, bearing a rude resemblance to Hebrew characters.

Hoffm. 3. 2. f. (not e. as misprinted.)

β *pulicaris*. Tubercles small, black, like fleas. LIGHTF. 801.

Mich. 56. 2.

In the crevices of the bark of old oaks. *Sphæria fulcata*, which see.

spherical

LI'CHEN *sphæroi'des*. Ground ash-coloured, greenish. Tubercles globular, flesh-coloured. DICKS. 9.

Dicks. 2. 2.

Crust between mealy and wrinkled, greenish with a tinge of sea-green. *Tubercles* small, spheroidal, dirty yellow or brown, heaped up into little clusters. DICKS.

Heaths and woods.

June.

sulphureous

LI'CHEN *sulphu'reus*. Crustaceous, rough, brimstone coloured. Tubercles black. HOFFM. 32.—Between leprous and crustaceous, cracked, somewhat hunched, pale brimstone coloured. Tubercles irregular, minute, brownish black. DICKS. ii. 17.

Hoffm. enum. 4. 1.—*Plant. lich.* 11. 3.

Crust like tartar, unequal, thickish, raised, cracked and tessellated, pale sulphur colour, white at the edge when broken. *Tubercles* at first numerous cloudy spots, at length rising out of the crust, not readily

readily distinguishable from it but by the blackish or dirty reddish colour. HOFFMAN.

Rocks in Scotland.

L I ' C H E N *vento'sus*. Ground yellow. Tubercles *red spangled* red. LINN.—Ground becoming white by age. WEBER. Dr. J. E. SMITH.

Web. 1. L. cruentus.—Fl. dan. 712, the lowermost figures, a good representation of the plant. The crust is described as greenish, and the saucers at the same time bordered with white.—Dill. 18. 14, on the authority of Mr. Lightfoot's examination of the Dillenian specimen.—Fl. dan. 472. 1, very ill done, if the plant.—Fl. dan. 470. 2, is said by Weber to resemble his plant in its younger state. The ground is described as white.*

Ground whitish, wrinkled, thick. Saucers convex, large, brownish red, the brims bent back so as to give them the appearance of tubercles. *Habit* that of *L. tartareus*. HUDS.—Tubercles large and irregularly shaped, at first very convex; through age flatter, and with a whitish margin from being surrounded by the crust, at length putting on the appearance of margined targets. The line between tubercled and saucer-like Lichens remains yet to be drawn; or rather it is more probable that future observations will entirely remove the artificial one at present formed. Mr. WOODWARD.

L. gelidus. Hudf. 528. Dr. J. E. SMITH.

On rocks. Pentirocks in Wales. DILL.—And in the North of England, Yorkshire, and both the Lowlands and Highlands. [Above Bowness on the banks of Winandermere, and on Casterton Fell near Kirkby Lonsdale. Dr. J. E. SMITH.—Upon rocks on the sides and tops of hills in Dartmoor, Devonshire. Mr. NEWBERRY.]

P. Jan.—Dec.

L I ' C H E N *verna'lis*. Ground whitish. Tubercles *rusty* roundish, rust-coloured.—

Hoffm. enum. 5. 1.—Dill. 18. 4, and the central part of 55. 8.

Ground ash-coloured-white. Tubercles nearly globular, jelly-like, crowded, fitting, without a cup-like brim. LINN.—Crust very thin, grey white. Tubercles of various sizes, not bordered. DILL.

L. ferrugineus. Hudf. p. 526.

* I have specimens of Weber's *L. cruentus* from Yorkshire, and believe it to be quite a distinct species. Mr. RELHAN.—Certainly distinct from the upper fig. *Fl. dan. 712*, but I can perceive no specific distinction between it and the lowermost fig. WITH.

Barks of trees, old pales, and sometimes walls and rocks.

P. Jan.—Dec.

β *Tubercles* brownish, somewhat soft and jelly-like, not so distinct as α, but crowded together. Perhaps it may be a distinct species.

LIGHTF.—They seem to me to be perfectly distinct. Mr. WOODW.

B. With SAUCERS. *Crustaceous, fludded with concave Receptacles.*

powdered

LI'CHEN *albes'cens.* Crustaceous, ash-coloured. Saucers concave, mealy, whitish. HUDS. ed. I. and II. 529.

Hoffm. enum. 7. 5. a.

Has the habit of *L. carpineus*. HUDS.

On walls and the bark of trees.

P. Jan.—Dec.

rugged

LI'CHEN *a'ter.* Crust whitish, wrinkled. Saucers black, borders white, mostly scolloped. HUDS.

Dill. 18. 15. A; and 55. 8, the parts next the fore edge of the stone on which the Bryum grows.—Hoffm. enum. 4. 4.

Saucers sometimes very entire. HUDS.—Crust, when on trees, thin, ash-coloured, hardly separable from the bark; on stones, whiter, thicker, more wrinkled and more stony. Shields black, at first small, without a border, as they grow larger, are nearly flat, and have a thin white border. DILL.

Common on walls, rocks, and barks of trees.

P. Jan.—Dec.

β Crust thicker and whiter, Saucers, borders wrinkled and bent in. LIGHTF. p. 814.

On walls.

black and yellow

LI'CHEN *byssinus.* HOFFM. enum. 46.—Crustaceous, powdery, blackish. Saucers flat, yellow, bordered with white. DICKS. ii. 19.

Hoffm. enum. 4. 7.

Trees and stones, Scotland.

bluish

LI'CHEN *cæ'sius.* Crustaceous, of a rusty ochrey-colour. Saucers elevated, of a black bluish hue, bluntly bordered. DICKS. ii. 19.

Dickf. 6. 6.

Crust equal, between wrinkled and tubercled, cracked. Saucers small, numerous, scattered, black, covered with a sea green bluish bloom, the bottom depressed, the margin convex and thick. DICKS.

On slate rocks in the mountains of Scotland.

golden

LI'CHEN *candela'rius.* Crust deep yellow. Saucers pale yellow.—

Hoffm.

Hoffm. lich. 17. 3.—*Jacq. coll.* iii. 6. 1.—*Dill.* 18. 18. B.

Crust spreading wide, often to a hand's breadth, moderately thick, yellow. *Leaves* wrinkled, cloven, firmly fixed, lobes blunt, pulpy, with age uniting and becoming powdery. *Saucers* very numerous, yellow, to orange, greenish when wet. Substance whitish, friable.

HOFFMAN.

L. candelarius α. Lightf. 811.

Rocks, walls, trunks of trees, old boards, and old pales.

P. Jan.—Dec.

LI'CHEN *canef'cens*. *Crust* expanded, whitish with *hoary* a tinge of sea green. *Saucers* very black. *Dicks.* 10.—*Tubercles* crowded. *RELH.* n. 846.

Dickf. 2. 5.—*Dill.* 18. 17. A.

Crust circular, 1 to 2 inches diameter, pressed to, or hoary, wrinkled, lobed, resembling small leaves cohering together, sprinkled in the center with mealy globules. *Saucers* small, numerous in the center, the margin blunt, of the colour of the disk. Being rarely found with *Saucers*, it has been supposed to belong to the *L. pallescens*. *DICKS.*—Has nothing in common with *L. pallescens*. Mr. WOODW.—*Crust* adhering very closely to the bark of trees, and the sides of walls, in circular patches from $\frac{1}{2}$ to 3 inches over, ash-coloured, wrinkled, less wrinkled in the center, rather leafy at the edge. *DILL.*

L. incanus. *Relh.* n. 846.

Walls and trunks of trees. [Very common on old trees, but rarely in fructification. Mr. WOODWARD.]

LI'CHEN *cupula'ris*. *Crustaceous*, whitish-green. *acorn-cup* *Saucers* hemispherical, very pale brick-coloured, the border convex and whitish. *HEDW. stirp.* ii. 58.—Cracked, with black dots. *Saucers* concave, reddish. *Dicks.* ii. 18.

Hedw. stirp. ii. 20. A.

Slate rocks in Scotland.

LI'CHEN *flavef'cens*. *Crust* of a yellow greenish *yellow* hue. *Saucers* reddish yellow. *Huds. ed.* i. and ii. 528. *HOFFM.* 59.

Dill. 18. 18. A. C.—*Hoffm. enum.* 9. 3, is jagged.

Habit that of *L. candelarius*, but the *crust* circular, wrinkled, greenish; and the *saucers* of a brownish yellow hue, or earthy yellow; convex. *Huds.*

Bark of trees, walls, rocks, and stones.

P. Jan.—Dec.

LI'CHEN

orange LICHEN *flavo-rubescens*. Crust of an ash-coloured-greenish hue. Saucers orange-coloured. HUDS. *ed.* i and ii.

Fl. dan. 955. 1.

L. aurantiacus. LIGHTF. 810.

Trunks of trees, rocks and stones,

P. Jan.—Dec.

frigid LICHEN *frig'idus*. Crustaceous, whitish, somewhat shrubby; little branches very short, crowded. Saucers bordered, tile-coloured. LINN. *the Son, in Syst. veg.* 958.—Expanded, shrub-like, white. Saucers flat, ochrey-flesh-coloured, borders white. DICKS. ii. 19.

Linn. fl. musc. 2. 4.

On the tops of the Highland mountains,

brownish yellow LICHEN *fusco-luteus*. Crustaceous, whitish, consisting of granulated masses. Saucers flat, dirty yellow, imperfectly bordered. DICKS. ii. 18.

Dicks. 6. 2.

Crust cohering, covering Mosses and other dead plants on which it grows, so that it has the appearance of having leaves and branches. Saucers of middling size, covered with a yellow meal, which being rubbed off they appear black, whence their general dirty hue. Border visible by means of a magnifying glass. DICKS.

On Ben Lawers and other mountains of Scotland.

broad LICHEN *gel'idus*. Crustaceous, whitish. Saucers with tubercles, wrinkled, tile-coloured. LINN.—Nearly orbicular, somewhat wrinkled, plaited-cracked, the center bearing tubercles. Saucers concave, red, with a border formed by the crust. DICKS. ii. 19.

Fl. dan. 470. 2.—(*Dill.* 18. 18. *a. c.* is referred to by Linn. not as being the plant, but as it would afford a good representation of it, provided the targets were twice as large, were all convex, and not bordered.)

Crust leafy, circular, so closely growing to the rocks as not to be separated from them; whitish, longitudinally wrinkled. Tubercles occupying the center of the crust, reddish tile-coloured, convex, considerably elevated, with ray-like plaits, without any border. LINN.—The redness of the saucers disappears when the plant is dry. DICKS.

L. hecla Oeder *fl. dan.* viii. 8, as Oeder very rightly conjectured. As Linnæus had not observed any saucers, he only mentioned a tubercle

tubercle in the centre.—*L. gelidus*. Hudf. 528, is a very different plant. DICKS.—See *L. ventosus*.

Rocks in the Highland mountains.

L I' C H E N *gibbo'sus*. Crustaceous, warty, brown. *gibbous*
Saucers nearly immerfed, black, bordered by the crust.
DICKS, ii. 20.

Dichf. 6. 5.

Crust thickish, unequal, hunched, with warts. *Saucers* shining, as if clammy, the border thick, and in reality nothing more than a projection of the crust. DICKS.

On alpine rocks. On the fummit of Ben Lawers.

L I' C H E N *lentig'erus*. Crust whitish, somewhat *white*
lobed. Saucers yellowish when full grown, white at the
edge. LINN. *the Son*.—Tiled. Leaflets lobed, rounded,
scolloped, white. Saucers yellow. RELH. n. 865.

Relh. at p. 430.—*Weber* 3.—*Hoffm.* 9. 4.—(*Mich.* 51. 2, a different species.)

Crust pure white, shining, divided into lobes so as to appear of the leafy kind, expanding into flat circular tufts. *Saucers* small, concave, at first of the same colour with the crust. LINN. *the Son*, from *Weber*.—*Crust* leafy. *Saucers*, at length becoming convex tubercles. WEBER. 192.—*Saucers*, the younger very small. RELH.—*Leaves* cream-coloured, closely tiled. *Saucers* tawny. MR. WOODWARD.

Heaths and dry pastures. Gogmagog Hills, Newmarket, and a heath near Newmarket. P. Jan.—Dec.

L I' C H E N *leucophæ'us*. Crustaceous, ash-coloured-*bluish*
brown. Tubercles brown. VAHL. *fl. dan.* xvi. 8. —
Crustaceous-tiled. Leaves very minute, between scol-
loped and with many clefts, sea-green-brown; the ends
thicker, very blunt, white and mealy. Saucers flat, black
with whitish borders. DICKS. ii. 20.—Saucers when moist-
ened bay. DILL.

Fl. dan. 955. 2.—*Dill.* 82. 2.

Composed entirely of granulated particles of a greyish blue colour, out of which rise a few *tubercles*, flat, fleshy, light reddish colour when fresh, blackish when dry. The under side of the crust is black, spongy, and like as if it had been burnt. DILL.

On rocks thinly covered with soil, in the Highlands.

L I' C H E N *lut'eus*. Crust of an ash-coloured greenish *yellow*
hue. Saucers yellow, edged with the same colour.
DICKS. II.

Dichf.

Dicks. 2. 6.

Crust a hoary meal, often scarcely discernible, finely sprinkled over a stratum of moss, or merely tinging it of a whitish hue. *Saucers* deep yellow, numerous, of a middling size, flat, sometimes 2 or 3 together, the rest scattered. *Dicks.*

Trunks of trees.

marble **LI'CHEN** *marmo'reus*. *Scop. n.* 1379.—Crustaceous, somewhat ash-coloured. *Saucers* flesh-coloured, somewhat hairy. *Hoffm.* 44.—Powdery. *Saucers* slightly concave without, and at the edge somewhat hairy and white. *Dicks.* ii. 18.

Hoffm. enum. 6. 4, (not *Jacq. coll.* ii. 13. 1.)

On the bark of trees, and on the bare ground covered with decayed moss, in Yorkshire, Derbyshire, and Scotland.

wall **LI'CHEN** *mura'lis*. Tiled, greenish with a tinge of yellow. *Saucers* of the same colour, at length yellow, borders pale. *Schreb. lips.* 130.—Somewhat tiled. *Dicks.* 11. *Relh. n.* 1028.

Hoffm. lich. 16. 1.—*Jacq. coll.* ii. 13. 4. a.—*Mich.* 51. 4.—*Hoffm. enum.* 11. 1, (not 9. 1, as cited in the description.)

Dry, friable, circular, leafy at the edge, leaves crowded, pressed and firmly fixed to the stone or wood on which it grows, narrow, cut into segments, scolloped and cloven at the end. *Saucers* in the central part, very numerous, almost covering it, varying in colour, flattish, grey green, yellowish, tawny, reddish or brown, paler at the edge. Whole plant greenish when young and wet, dirty grey or yellow brown when old and dry. *Hoffman.*

(Not *L. pallescens* under which Reichard has inserted it as a synonym. No one who had examined both could possibly suppose them the same. It much more nearly resembles *L. cartilagineus*. *Mr. Woodward.*)

Rocks and old walls. [Not uncommon. *Mr. Woodward.*]

P. Jan.—Dec.

pale **LI'CHEN** *palles'cens*. *Crust* whitish, *saucers* pale.

Hoffm. enum. 10. 2. 1.—*Dill.* 13. 17. B, (*A* is *L. canescens* of *Dicks.*)

Can scarcely be said to have any *crust*, being usually nothing more than a congeries of *saucers*, frequently so crowded as to form a convex surface, the inner ones being pressed upwards by the outer. *Mr. Woodw.*—Growing in a circular form, often covered with a powdery, greenish substance. *Saucers* greatly crowded, of no regular shape, small, flat, pressed together, grey green or lead colour, border white. *Crust* irregular, ash-coloured, leafy at the edge. *Dill.*

Rocks, walls, and trunks of trees.

P. Jan.—Dec.

LI'CHEN

LI'CHEN *pal'lidus*. **HOFFM.**—Crustaceous, slightly *pale* woolly, hoary. Saucers elevated, flat, rough, brown; the border waved, white. **DICKS.** ii. 19.

Hoffm. enum. 5. 2.—*Hoffm. lich.* 17. 2.

Crust unequal in thickness; very white, greyish with age. *Saucers* when young, whitish grains, with a very small aperture; when opened, pale flesh or reddish colour. **HOFFMAN.**

On the clefts of the bark of trees, and on dry wood.

LI'CHEN *Parell'us*. *Crust* white. *Saucers* concave, *crab's-eye* pale, with blunt brims.—

Hoffm. enum. 6. 2.—*Dill.* 18. 10.—*Hoffm. lich.* 12. 5.—*Pet. musc. f.* 79.

Sometimes so different in its appearance as to be with difficulty known, the *crust* being much thinner, and the *saucers* larger and flatter than common. *Crust* thick, warty, white in its fracture, reddish when wet and rubbed to powder. *Saucers* numerous, whiter than the warts, globular but depressed in the center, larger and flatter with age. **HOFFM.**—*Crust* wrinkled, granulated, stony to appearance, not gritty when chewed, but rather tough; yellowish when cut. *Saucers* like crab's eyes, whitish. **DILL.**—Litmus is prepared from this species. For this purpose it is gathered from the rocks in the North of England, and sent to London in casks. **WITH.**

Rocks, walls, stones, trunks of trees. [Malvern Hills, Worcestershire. **ST.**—On the smooth bark of a beech in Hertfordshire. **MR. WOODWARD.**]

P. Jan.—Dec.

LI'CHEN *pezizoi'des*. *Crust* fugacious. *Saucers* *Peziza* yellow, crowded, bordered. **WEBER** 200.

Dicks. 2. 4.—*Hoffm. enum.* 7. 6.

Crust sea-green, blackish when old, not always to be found. *Saucers* yellow when young, brownish afterwards, at length quite brown; shining, flattish but sometimes convex, border raised, scolloped, sea-green. **WEBER.**

Sandy banks.

LI'CHEN *rimo'sus*. **RETZ.** *scand.* 1339.—Ground *chinked* whitish, full of chinks; the portions roundish, angular. *Saucers* sea-green, with white brims. **OEDER** in *fl. dan.* viii. 3.

Fl. dan. 463. 3.

Rocks and stones in Yorkshire. **DICKS.** 12.

LI'CHEN *scrupo'sus*. *Crust* ash-coloured, granulated. *hollowed* *Saucers* immersed, black, finely scolloped at the edge. **SCHREB.** *spic.* 133. **DICKS.** p. 11.

Hoffm.

Hoffm. lich. 11. 2.—*Hall. enum.* 2. 6, at p. 91, repr. in *hist.* 47. 6, at iii. p. 88.—*Dill.* 18. 15. B.—*Hoffm.* 6. 1.

Crust when moist greenish-ash-coloured, when dry greyish. Mr. WOODW.—Crusty, thick, cracked, warty, grey; whitish when thinner, brittle when dry. Saucers sunk in the crust, hollow, lead-coloured. HOFFMAN.

L. excavatus. Relh. p. 426.

Walls and dry heaths, Gogmagog Hill, Newmarket Heath. [On walls frequent, Norfolk and Suffolk. Mr. WOODWARD.]

P. Jan.—Dec.

β Crust widely expanded, thicker. RELH.

On walls.

brown-spangled

LI'CHEN *subfus'cus*. Crust whitish. Saucers black; the younger pitcher-shaped and hollow. LINN. *syst. veg.* 958.—Brownish, border ash-coloured, sometimes scolloped. *Sp. pl.* 1609.

Dill. 18. 16. A, A, in two compartments of fig. 3 and 4 of the upper row.—*Hoffm. enum.* 5. 3; the compartments numbered 3, 3, 3, 3.

—*Dill.* 18. 16. B, the borders scolloped.

On the bark of trees, and walls.

P. Jan.—Dec.

sub-imbricated

LI'CHEN *sub-imbrica'tus*. Crust ash-coloured, somewhat tiled. Saucers black, crowded, borders white. RELH. n. 856.

Relh. at p. 427.

Crust circular, thick, somewhat tiled at the edge, 1 to 4 inches in diameter. Saucers very numerous. RELH.—Has a tendency like the *centrifugus* to lose its central part, which falling off with the old saucers, leaves only the somewhat tiled leaves. Mr. WOODWARD.

Stones and walls.

P. Jan.—Dec.

tartareous

LI'CHEN *tarta'reus*. Crust greenish, with a tinge of white; saucers yellowish, white at the edge. LINN.—Crust whitish. Saucers yellow. HUDS.

Dill. 18. 13, referred to by Hudf. and Lightf. is the plant here intended and which corresponds with the Linnæan character.—*Fl. dan.* 712. 1.—*Phuk.* 90. 4, the saucers separate.—(*Dill.* 18. 12, and *Mich.* 52. ord. 33, are referred to by Linnæus, Pollich, and Hagen, but the saucers of Dillenius's plant are described as brown, and those of Micheli's as black.)

Substance tough, not gritty; acrid. Crust thickish, wide spreading, greatly wrinkled, reticulated underneath, growing on other decayed mosses. Saucers large, deeply concave, borders sometimes scolloped.

scolloped. DILL.—It assumes various appearances. Sometimes has a thinner and more uniform crust than usual, thickly covered with white tubercle-like excrescences, and free from shields except in the center, where they are so thickly crowded as to be confluent. Sometimes it grows on moss, the branches of which are furrounded with it exactly like the incrustations formed by springs abounding in a calcareous earth running over a bed of moss. Mr. Woodw.

Rocks and large stones. North of England, Devonshire and Wales. Bingley, Yorkshire, Caernarvon, Highlands and Lowlands. [Stierperstone, Shropshire. DILL. ST.—Malvern Hills. Mr. BALLARD. ST.] P. Jan.—Dec.

It is common in Derbyshire, and incrusts most of the stones at Urswic Mere. It is gathered for the dyers, by peasants who sell it for a penny a pound. They can collect 20 or 30 pounds a day. It gives a purple colour.

LI'CHEN *upsalien'sis*. Crust, with awl-shaped, scored *upsal* leaves.—

Dickf. 2. 7.—Hoffm. enum. 7. 1.—Hoffm. lich. 21. 2.

Of the size of *L. saxatilis*, ash-coloured, white, composed of bristles; *bristles* straight, white, withering, prostrate, unequal, confused, very simple, as long as the nail, very brittle, frequently several united at the base. *Saucers* white, with a blunt border, rather large, from the root, not placed on the bristles. LINN.—Crust of a milky whiteness, very brittle, investing slender leaves of grass or moss. *Saucers* globular, dimpled, crowded, cream coloured. HOFFM.

Heaths near Norwich.

C. TILED. *Leaves spreading flat, and fixed to the substance on which they grow.*

LI'CHEN *carno'sus*. Tiled. Leaflets very much *fleshy* crowded, nearly upright, rounded, torn, the margin mealy. *Saucers* thick, elevated, flat, reddish brown. DICKS. ii. 21.

Dickf. 6. 7.

Leaves minute, brownish green, curling when dry. *Saucers* rather remote, some connected, rising from between and somewhat higher than the leaves, fleshy, smooth, paler underneath. DICKS.

Rocks on the mountains of Scotland.

LI'CHEN *cartilagin'eus*. Tiled. Leaves scolloped, *gristly* pale, gristly. *Saucers* flat, tawny. LIGHTF. 815.—Leaves lobed, rounded, greenish. HUDS. 530.

Mich.

Mich. 51. ord. 30. 1.—*Hoffm. enum.* 19. 1.—*Dill.* 24. 74.

—*Mich.* 51. ord. 30. 2, in its younger state?—(In *Mich.* 48. 2, the saucers are much larger than in this species.)

Leaves small, roundish, somewhat notched, very thick, of a yellow herbaceous hue, HUDS.—fleshy. Saucers, the young ones concave and regular, the old ones flat and irregular. Mr. WOODWARD.

L. crassus. Hudf. 530.

Rocks thinly covered with earth, and mountainous heaths. Near Newborough, on Llandwellyn Rocks; on Glyder Hill; about Malham, Yorkshire, Westmoreland, and King's Park, near Edinburgh.

P. Jan.—Déc.

spreading **LICHEN** *centrifugus*. Tiled. Leaves with many imperfect clefts; smooth; whitish; pointing from a center. Saucers reddish brown.—

Hoffm. enum. 10. 3.—*Dill.* 24. 75.—*Hoffm. lich.* 16. 2.—*Fl. lapp.* 11. 2.—*Buxb.* ii. 7. 3.

Distinguishable at first sight by spreading from a centre to the circumference and gradually decaying in the middle. LINN. *suec.* n. 1074.—Circular, flat, outer leaves largest, tiled, neatly scoloped and curled, with many clefts. Colour greenish, glaucous, or yellowish when growing on wood. Surface minutely dotted with black or rough with very minute cylindrical substances. Saucers in the center, crowded, large, irregular, red brown or black. HOFFMAN.—Weis's and Lightfoot's descriptions good. Leaves usually covered with numerous granulations like *L. physodes*, and others of this division. Saucers, the small ones cup-shaped, and regular, the large ones much and variously diffomed, in age the brown part dropping out, leaving the exterior cup which is then of the same colour with the leaves, except that the inside is rather greener. Mr. WOODWARD.—Leaves disposed in a circular form, the outer ones the largest, elegantly scoloped, laid like tiles one over another, yellow green, black on the under side. Saucers reddish brown, edged with yellow green. DILL.

Rocks, walls, large stones, and trunks of trees. P. Jan.—Dec.

curled **LICHEN** *crispus*. Tiled. Leaves lobed; lopped; scoloped; blackish green. Saucers of the same colour, HUDS. ed. i. LINN. *synt. veg.* ed. xii. and xiv.—blackish brown. HUDS. ed. ii.

Dill. 19. 23.

Distinguishable from *L. cristatus* by its being more curled and less jelly-like, the lobes of the leaves being round, blunt, and not divided as in *L. cristatus*. Mr. WOODWARD.—Leaves dark green, rather

rather thick, divided into broad shallow lobes, innermost leaves smallest, curled. Lobes blunt, scolloped in the summer, hardly perceptibly so in the spring. *Saucers* dark green, lying flat on the leaves; border granulated. DILL.

Shady places on stones and at the bottom of walls.

A. Oct. — June.

LI'CHEN *cristatus*. Tiled, between toothed and *crested* fringed. *Saucers* larger than the leaves.—

Dill. 19. 26.—(*Dill.* 19. 25, is *L. marginalis*.)

Leaves, their crested appearance best observed in the young plants. *Saucers* sometimes very large and confluent. Mr. Woodw.—*Leaves* glaucous green, crowded, tiled, thick, flat, cut at the edges into many shallow segments. *Saucers* at the base of the leaves, very broad, scarcely concave, brown or reddish brown in the center, border the colour of the leaves. DILL.

Rocks, stones, walls, and shady stony places. [On the ground. Mr. Woodward.]

A. Oct.—July.

LI'CHEN *decepiens*. HEDW. *flirp.* ii. 7. Tiled. *deceiving* Leaves nearly circular, rather distant, full tawny; white underneath and at the edge. *Saucers* on the edge, convex, black. DICKS. ii. 21.—*Leaves* lobed, shining, brownish. *Saucers* brownish, the border white, star-like. RELH. n. 866.

Hedw. flirp. ii. 1. B.

Very beautiful. *Saucers*, the edges silvery white. RELHAN.—*Saucers* very numerous, bright brownish colour, the margins scolloped, white, shining, the younger flat, the older irregular and deformed, in age black. Mr. Woodw.—Flat, expanded, rather thick; roundish when young, oblong when old, rather concave, smooth, brick colour, paler when dry. HEDWIG.

L. stellatus. Relh. 430.

On the ground on heaths, dry pastures, and barren places. Gogmagog Hills, Newmarket Heath, in Surry and Scotland.

P. Jan.—Dec.

LI'CHEN *fahlunien'sis*. Tiled. Leaves strap-shaped, *cork* forked, flattish, pointed, black. *Saucers* black.—

Fl. dan. 958.—*Jacq. misc.* ii. 10. 2.—*Dill.* 24. 81.—*Hoffm. enum.* 17. 2.

Circular, leathery, thin, both surfaces shining, brown changing to black, curled at the edge, lobes blunt, white within. *Saucers* very numerous and crowded on the upper surface, concave, black, shining. JACQUIN.

Rocks

Rocks and large stones, on the Highland mountains. LIGHTF.—
Near Langdale, Lancashire. HUDS. P. Jan.—Dec.

river LI'CHEN *fluvial'ilis*. Tiled. Leaves lobed, somewhat scolloped, convex, blackish green. Saucers globular, hollow, of the same colour. HUDS. 536.

DILL. 19. 28.

Fixed by the center. *Leaves* or shoots variously divided, convex above, concave below, the ends with small indentations; hardish, gelatinous and pellucid when viewed against the light, dirty green, black above when dry and grey underneath. The leaves are proliferous, but not jointed. DILL.

On stones under water in alpine rivulets. In a stream coming out of Malham Cove, Yorkshire, and in the rivulets on Snowdon. DILL. P. Jan.—Dec.

fuscos LI'CHEN *fus'cus*. HUDS. 533, and 659.—Tiled. Leaves very narrow, matted, jagged, brown, convex above, the ends bent down. Saucers brownish black. LIGHTF. 825.—Leaves with many clefts, brownish. HUDS.

DILL. 24. 69.—Mich. 51. 6.

Saucers very numerous, and frequently so crowded as to deform one another, borders thick. *Tubercles* besides, of the same colour as the leaves. Mr. WOODW. — *Leaves* cut into very narrow segments, smooth, with numerous black fibres underneath. DILL.

L. pullus. Lightf. 825.

Rocks and larger stones near Bangor and other places in Wales, Westmoreland, and Scotland. P. Jan.—Dec.

granulated LI'CHEN *granula'tus*. Tiled. Leaves roundish, scolloped, roughish, blackish green. Saucers concave, tawny, HUDS. 536.—the disk depressed. LINN. *the Son*, *suppl.* 450.

Fl. dan. 462. 1.—DILL. 19. 24.

Grows in a circular form. *Leaves* variously jagged, lobes blunt, ear-shaped in the middle part, with numerous fleshy shining globules in the hollow part, of the colour and substance of the leaves. DILL.

Closely adhering to the gravel and pebbles of the walks of Oxford Physic Garden. DILL.—[On a wall near Kirkby Lonsdale. Dr. J. E. SMITH.] P. Jan.—Dec.

LI'CHEN *lu'ridus* SWARTZ.—Tiled; apparently *lurid* crustaceous. Leaves minute, indented, thick, brownish green, white underneath. Tubercles black. DICKS. ii. 20.

Mich. 54. *ord.* 36. 4, *cop. in Dill.* 30. 134.

Leaves almost inconspicuous, green, tiled. *Fructifications* black. Grows on old walls. MICHELI.

On rocks on the mountains of Scotland.

LI'CHEN *margina'llis*. Tiled. Leaves with many *marginal* clefts, tooth-scolloped, blackish green. Saucers on the edge of the leaf, flattish, blackish brown. HUDS. 534.

Dill. 19. 25.

Leaves lying on the ground, brown green, black when dry, their ends frequently cut and curled. *Saucers* numerous, small, concave, bordered, brown green when fresh, reddish when dry. DILL.

Rocks, and stones in the Northern parts of Britain, and in Caernarvonshire. Near Lucton, Herefordshire. DILL.—[Walls about Settle and Kirkby Lonsdale. Dr. J. E. SMITH.] A. Oct.—June.

LI'CHEN *oliva'ceus*. Tiled. Leaves lobed, shining, *olive* of a livid hue.—

Hoffm. enum. 13. 5.—*Dill.* 24. 78.—*Vaill.* 20. 8.

Olive green, black underneath. *Saucers* green within, grey on the outside, fitting, flat or concave, border scolloped, granulated. DILL.

L. olivaceus β Hudf. 532.

Rocks, stones, and trunks of trees. In the wood on Shooter's Hill, Kent. Slinford, Suffex, and Bagley Wood near Oxford.

P. Jan.—Dec.

β POLL.—*Saucers* smooth. DILL. 182.

Hoffm. 13. 3 and 4.—*Dill.* 24. 77.—*Mich.* 51. *ord.* 19.

Generally grows in a circular form; thin, crustaceous, closely adhering. *Leaves* smooth, rather shining, brown green, segments blunt. *Saucers* rarely found, but where they do exist, the leaves are more cut and scolloped. The plants without saucers have numerous granulations in their substance. DILL.

L. olivaceus α Hudf. 532.

On the bark of trees.

γ HUDS.—Segments broader, more wrinkled, the middle elevated into wrinkles, sprinkled with numerous small grainlike warts. *Saucers* none. DILL. 183.

On birch trees. DILL.

purple **LICHEN** *omphalo'des*. Tiled. Leaves with many clefts, smooth, blunt, hoary, sprinkled with scattered rising dots.—

Dill. 24. 30.—*Vaill.* 20. 10.—*Hoffm. enum.* 12. 2.—*Jacq. coll.* ii.

15. 2. a. b.—*Mich.* 49. 2.

Colour dull purple, shining, smooth, with numerous black fibres underneath. Leaves interwoven, about an inch long. Saucers dull purple, and smooth within, grey on the outside and hairy, cracked at the edge. **DILL.**

Cork, Corker, or Arcell. Kenkerig Welsh.

On rocks.

Jan.—Dec.

It dies wool of a brown reddish colour, or a dull but durable crimson or purple, paler but more lasting than that of Orchal. It is prepared by the country people in Ireland by steeping it in stale urine, adding a little salt to it, and making it up into balls with lime. Wool dyed with it and then dipped in the blue vat becomes of a beautiful purple. With rotten oak it makes a good dark brown frize. Wool dyed with red wood, or sanders, and afterwards in corker, becomes of a dark reddish brown. **RUTTY.**—It has been used as a styptic.

palmated **LICHEN** *palma'tus*. Tiled. Leaves somewhat hand-shaped, and scolloped, of a sea-green purplish hue. Saucers tawny. **HUDS.** 536.

Dill. 19. 30.—*Vaill.* 21. 15.

Grows closely crowded and tiled. Leaves very tender, pellucid, rather gelatinous, very much cut, segments ending in 2, 3, or 4 horn-shaped teeth, dull brown, or purplish green, convex above, concave underneath. **DILL.**

Heaths and trunks of trees among moss.

A. Sept.—June.

common **LICHEN** *parieti'nus*. Tiled. Leaves curled, deep yellow. Saucers the same colour.—

Dill. 24. 76.—*Col. ecphr.* i. 331. 2.—*Hoffm. enum.* 18. 1.

Agrees with *L. candelarius* and *juniperinus* in colour, but the former consists merely of branny scales, the latter of loose leaves. The *parietinus* is an intermediate species. **LINN.** *fuec. n.* 1080.—*Crust* indented, wrinkled, margin leafy. Leaves cut, and ending in blunt segments. Saucers on the foliage as well as on the central crust, small, yellow, with a border of the same or a paler colour. Varies in colour from greenish to deep golden yellow. Grey underneath. **DILL.**—In age frequently losing its central leaves and targets, like the *centrifugus*. **MR. WOODWARD.**

Trunks

Trunks of trees, walls, tiles, wood, and stones. P. Jan.—Dec.
It affords a yellow dye.

LI'CHEN *physodes*. Tiled. Segments blunt, some- *inflated*
what inflated.—

Hedwig. theor. 31. 183. 184. 185.—*Dill.* 20. 49.—*Hoffm. enum.* 15. 2.
—*Mich.* 50. *ord.* 25. 1. 2.—*Fet. gaz.* 14. 6, *not a good representation.*—(*Fl. lapp.* 11. 2, is *L. centrifugus*.)

Grows half upright, variously cut and divided, the shorter plants most cut, and assuming a circular figure. Segments blunt, as if lopped at the ends, and with 2, 3, or 4 clefts. *Leaves* smooth, grey white or glaucous green, and convex above, hollowed, black, and rough underneath; formed of 2 layers with a hollow between them, which is peculiar to this species. The whole plant more or less mealy. *Saucers* on short foot-stalks, concave, brown green or reddish or yellowish brown within, the outside the colour of the plant. In my specimens those plants only are mealy which have no saucers. DILL.

Trunks of trees, stones, and heaths. P. Jan.—Dec.

LI'CHEN *plumbeus*. Tiled. Leaves bluntly lobed; *lead-coloured*
lead-coloured, blue and spongy underneath. *Saucers* reddish rust-coloured. LIGHTF.—Leaves rounded, scol-
loped, very woolly underneath. *Saucers* tawny. HUDS.
—*Leaves when dry ash-coloured or yellowish white, and in long preservation the blue spongy hairs turn white.* LIGHTF.

Lightf. 26, at p. 826, *cop. in Hoffm. enum.* 21. 2.—*Dill.* 24. 73.
—*Mich.* 43. *ord.* 23. 1.

Leaves, the blue spongy hairs frequently extending beyond the edge. *Shields* brownish red, scalloped when old, their brims of the colour of the leaves, LIGHTF.—small. *Leaves*, the edges and wool-
lines on the under surface blue. HUDS.

L. caeruleus. Hudf. p. 531.

Trunks of trees. Near Pentir and Bangor. DILL.—About Brad-
ford, Yorkshire. About Drumlanrig, and in Barntimpenn Linn,
about five miles from Moffat. Dr. BURGESS in *Fl. Scot.*—[On the
great island in Winandermere. Dr. J. E. SMITH.—On trunks of
oak, ash, and elm, Devonshire, very common. Mr. NEWBERRY.]

P. Jan.—Dec.

LI'CHEN *saxatilis*. Tiled. Leaves indented, *stone*
rough, pitted. *Saucers* chestnut-coloured.—

Hoffm. enum. 16. 1.—*Dill.* 24. 83.—*Vaill.* 21. 1.—*Mich.* 41. *ord.*
22. 1.—*H. ox.* xv. 7. row 4. 6.—(*Hoffm. enum.* 15. 1, is a

good representation of it, but is described as having saucers of the same colour with the leaves.)

Lightfoot's description good. The mealy tubercles found on the old and shield bearing plants as well as on the younger. Mr. Woodw.—Circular when young, and from $\frac{1}{2}$ to 1 inch diameter. Leaves short, segments broad, blunt, scolloped and indented at the ends; pitted on the upper surface, glaucous green; black and fibrous underneath; sometimes smooth, though pitted; sometimes rough with flat mealy eminences. Saucers seldom found, reddish or blackish, the border the colour of the leaves. DILL.

Stones, rocks, and trunks of trees.

P. Jan.—Dec.

It is used by the inhabitants of the North to dye purple.

β HUDS.—Leaves sometimes in the winter acquiring a reddish tinge, in every other respect resembling the preceding. DILL.

sinuated LICHEN *sinuatus*. Tiled. Leaves roundish, indented, scolloped, brownish green. Saucers of the same colour. HUDS.

Dill. 19. 33.

Much compressed and crowded in its growth. Leaves short, broadish, flat, spreading, thin, pellucid, somewhat gelatinous, cut into segments, finely scolloped at the ends; outer leaves the largest. Saucers small, fine sea-green like the leaves, more conspicuous in the dry plant because changing to brown. DILL.

Rocks, stony and shady places. Near Wigmore, Herefordshire, and Ashburton, Devonshire. [On the rock at Dumbarton Castle, Scotland. Dr. J. E. SMITH.—On a stone wall at Chagford, Devonshire, between the town and parsonage, but without shields. Mr. NEWBERRY]

A. Sept.—July.

scaly LICHEN *squamatus*. Tiled. Leaves minute, thickish, rounded, indented and angular, green, with a tinge of sea-green. Saucers convex-flat, rough, black, with an imperfect border. DICKS. ii. 20.

Dill. 30. 135.

Leaves small, thick, leathery, with shallow segments, whitish underneath. DILL.

On the ground in turfey places, Scotland.

Fixed firmly to some species of Bryum. DILL.

starry LICHEN *stellatus*. Tiled. Leaves oblong; ash-coloured, jagged, narrow. Saucers blackish brown.—

Hoffm. enum. 13. 2.—Dill. 24. 70.—Fl. dan. 957. 1.—Hedw. theor. 31. 181, the seeds.

Of a greenish hue when moist, when dry ash-coloured. HUDS.—*Saucers* when young white or grey, being covered with a thin mealy pellicle, but as they enlarge and grow older the pellicle disappears, becoming black, with a border of the same colour as the leaves. Specimens sometimes found with only tubercles and no saucers. LIGHTF.—Ash-coloured when fresh, whiter when dry. *Leaves* with narrow, oblong segments, diverging from a center, smooth. *Saucers* on the central part, black, with a grey border; sometimes intermixed with mealy tubercles. DILL.

Trunks of trees, walls, and stones.—More frequent on the smaller branches than on the trunks of trees. DILL.

β LIGHTF. and HUDS. 534.

Fl. dan. 957. 2.—*Hoffm. enum.* 13. 1.—*Mich.* 43. 2.—*Dill.* 24. 71.

In circles of 4 inches or more in diameter. *Leaves* when fresh rue-coloured, after being kept some years turning to russet-grey; segments stiffer, and not so closely united as their extremities. *Saucers* larger. LIGHTF. 824.—Deep glaucous green when wet, grey when dry, even whilst growing. *Leaves* stiff, segments blunt. Roots black fibres. *Saucers* numerous in the center, of different sizes intermixed, glaucous when young, black when old; border the colour of the leaves. DILL.

Oak, beech, elm, and other rough trees. DILL.

γ HUDS.—*Saucers* with curled brims. *R. syn. p.* 75. η. 75.—The saucers of variety β when becoming old, have their outsidcs and brims covered with minute leaves, so as to appear curled. LIGHTF. p. 825.

D. LEAFY. *Leaves not fixed to the substance on which they grow.*

LI'CHEN *ampulla'ceus*. Leafy; rather flat; lobed; bladder scolloped. *Saucers* globular; inflated.—

Dill. 24. 82, *cop. in Jacq. coll.* 1. 4. 3. c. and *Hoffm. enum. lich.* 13. 2.

Segments, broad, short, finely scolloped, smooth on both sides, brownish or purplish black. *Saucers* at the base or at the edge of the leaves, very large, not hairy, like an inflated bladder, perforated at the top, wrinkled, greyish, within dark purple. DILL.

Mountainous pastures. On Emmot Pasture near Coln, Lancashire. RICHARDSON, who sent a specimen of it to Dillenius. See p. 188. ST.—A figure only is to be found in the Dillenian herbarium. Mr. WOODWARD. P. Sept.—Nov. HUDS.

LI'CHEN *Burgess'ii*. Leafy, somewhat tiled, curled. *Burgess's*
Saucers elevated, between hedge-hogged and curled, with
 N 3 the

the bottom flat and depressed. LINN.—Nearly upright, pellucid, curled. Saucers flat, shining, borders, curled. BURGESS in Linn.

Lightf. 26. 1, at p. 826, cop. in *Hoffm. enum.* 21. 1.

Leaves thin, membranaceous, dull green, lobed, and toothed, when dry brownish purple, opaque, a little hoary underneath. Saucers dull green, on very short fruit-stalks, with leafy curled borders; when dry a little sunk or concave, and dark reddish brown. LIGHTF.

Trunks of hazel and birch in Dumfrieshire. Discovered by the Rev. Dr. Burgess, of Kirkmichael, Dumfrieshire. P. Jan.—Dec.

channelled LI'CHEN *calica'ris*. Leafy; upright; strap-shaped; branched; pitted; convex; with sharp points at the ends.—

Dill. 23. 62.—*Col. ecphr.* i. 334. 2, *abr. in H. ox.* xv. 7. row the last, 5; and ill cop. in *Park.* 1312. 4.—*Fl. dan.* 959. 1, the best representation of a narrow-leaved plant.—*Walc.* No. 9.—*Vaill.* 20. 6.

Dillenius does not think this specifically different from the *L. farinaceus*, and Mr. Relhan is of the same opinion.—From 1 to 3 inches high, or more, variously branched. Leaves (or rather stems) convex on one side, hollow on the other, with shallow oblong pits on each side, smooth, rather shining and stiffish. Saucers small, lateral and terminating, concave, becoming flat, the same colour as the plant, viz. pale greenish grey. The tops of the branches end in hooked points, either upright or horizontal, which is peculiar to this species and readily distinguishes it. DILL.

Rocks, and on the bark of trees.

P. Jan.—Dec.

rose LI'CHEN *capera'tus*. Pale green; wrinkled and waved at the edge. LINN.—Leafy, creeping, lobed, yellowish sea-green. Saucers brownish red. HUDS.

Dill. 25. 97.—*Hoffm. enum.* 19. 2, and 20. 2.—*Mich.* 48. 1.—*H. ox.* xv. 7, row 4. 1.

Not very leafy, sea-green-yellow. Saucers seldom found. LINN.—Circular in its growth, from 1 inch to 1 foot in diameter, the small ones like a rose, the larger ones less regular. Leaves oblong, cut, terminating segments broadest, yellow glaucous green; surface not pitted, but marked with oblong or oblique unequal wrinkles, as well on the leaves as on the central crust. Saucers on the larger plants, either pale flesh-colour, or the same colour as the leaves. The whole plant sometimes mealy and bearing mealy warts. DILL.

On stones, rocks, trunks of trees, [and pales. Mr. WOODWARD.]
P. Jan.—Dec.

The people in the North of Ireland and Isle of Man, dye wool with it of an orange colour. Serge dyed with it became of a lemon-colour, but if previously infused and boiled in urine, of a russet brown. It is probably what the people in the North of Ireland call *Stone-crottles*, and which there and in the Isle of Man, is used to dye wool of an orange-colour. It is also called *Arcell* from the resemblance it has to the *Orchal* in its use in dying. RUTTY.

L I ' C H E N *cilia'ris*. Leafy, somewhat upright; *fringed* segments strap-shaped, fringed. Saucers on fruit-stalks; scolloped.—

Hoffm. lich. 3. 4.—*Fl. dan.* 711.—*Vaill.* 20. 4.—*Tourn.* 325. 2. C.
—*Walc.* 9.—*Dill.* 20. 45.—*Hedw. theor.* 30. 175, 176; 31. 177,
178, 179, 180.—*H. ox.* xv. 7. row 4. 6. fig. next but one to the
margin.—*Col. ecphr.* 1. 334. 3, the uppermost fig.—*Happ.* i.
Lichen i.

Foliage strap-shaped, narrow, 1 or 2 inches long, variously cut into pointed segments, fringed with blackish or self-coloured hairs, so as to give a rough almost prickly appearance to the plant. When wet good green above, sea-green underneath, but whitish when dry, smooth. *Warts* of the same, or a darker colour, numerous, often crowded. *Saucers* on the upper branches and on the stem, on short pedicles; dark brown to black; border the colour of the leaves.
HOFFMAN.

β (Huds.) Ends of the leaves tubular. HOFFM.

On most trees.

P. Jan.—Dec.

Hoffm. lich. 3. 2 and 3.—*Dill.* 20. 46.—*Vaill.* 20. 5.—*Mich.* 50.
ord. 27 and 28.

Variously shaped, forming at first a small flat circle, segments slender, sub-divided at the ends, grey white, greenish when wet, more grey underneath. Surface sprinkled with minute black dots, edges hairy. Other parts of the leaves swelling at the end pour forth a greenish powder, the discharge of which leaves an open cavity in the substance. *Saucers* on short foot-stalks, rare, found on the plants with leaves hollow at the ends. They are circular, brown or blackish, surrounded with a border the colour of the plant. This species connects the *leafy* and *tiled* Lichens with the *leafy* and *upright*. Common on stones and trees; chiefly the Willow and Blackthorn. HOFFM.

On most trees and sometimes on stones,

shell LI'CHEN *cochlea'tus*. Leafy, membranaceous, lobed, plaited, dark green. Saucers reddish brown. DICKS. 13.

Dickf. 2. 9.

Leaves concave, the edge bluntly lobed, plaited when dry, between ash and lead-coloured, when moist dark green. Differs from *L. Vespertilio* in the edges of the leaves being elevated and concave, in being of an ash-lead-colour when dry, the saucers being larger and not crowded. DICKS.

Woods at the roots of trees, Devonshire. Mr. SLATER.—Yorkshire. Mr. CURTIS.

white-horned LI'CHEN *cornicula'tus*. Leafy, nearly upright, mostly pitted, smooth; segments narrow, horned. RELH. n. 875.

Dill. 21. 54.—Vaill. 20. 7.

Leaves white. *Warts* mealy. *Saucers* large, on foot-stalks, white without, brown within; on the edges of the leaves. RELH.—*Leaves* tender, divided and sub-divided into narrow, oblong, horned segments, smooth but not shining, upper surface convex, under side hollow. DILL.

L. prunastri. (β Hudf.)

On dry half decayed branches of Heath, on a moor 2 miles from Lippock, Hampshire. DILL.—Trunks of trees and on pales. [Grows common with the *L. prunastri* on trunks of trees. Staleybridge, near Manchester. Mr. BRADBURY.]

P. Jan.—Dec.

reddish LI'CHEN *croca'tus*. Leafy, the edge yellow, powdery, LINN.—pitted, yellowish, brownish red, with yellow grains; segments indented, rounded. Saucers somewhat concave, brownish black, with a border from the leaf. DICKS. ii. 22.

Dill. 84. 12.

Leaf somewhat leathery, flat, somewhat wrinkled, divided into large segments, of different shades of yellow green, olive and reddish, within always bright yellow, of the same colour underneath, but covered with a blackish wool, with yellow dots interspersed. *Yellow balls* disposed along the edge and often over the whole surface in a chain-like or net-like manner. *Saucers* few, the border thick, formed by a swelling of the leaf. DICKS.

Rocks in the Highlands.

LI'CHEN *fallax*. Leafy, jagged, thin, sea-green *fallopi*an above, white underneath, with black spots interspersed. Saucers terminating. WEBER 244.

Dill. 22. 58.—*Mich.* 37.

Differs from *L. glaucus* for which it may be easily mistaken, as follows. *Segments* diffuse, not depressed, white underneath, never black or brown. *Saucers* terminating, not generally scattered over the surface of the leaves. DICKS. 13.—*Leaves* several from the same center, a finger's length, cut into a few segments, elegantly fringed and finely cut at the edge, fringe crisp, granulated; surface smooth, substance blackish. *Saucers* large, terminating, concave, wrinkled, reddish within. DILL.

Rocks in Devonshire.

LI'CHEN *farina'ceus*. Leafy; upright; compressed; *mealy* branched; with mealy warts on the edge.—

Vaill. 20. 13, 14, 15.—*Dill.* 23. 63, A, B, C.—*Walc.* No. 9.

Short and hair-like when young (A); broader when older (B); 1 to 3 inches high, compressed, segments sometimes fewer and broader (C), irregular, grey glaucous green, smooth, rigid. *Warts* on the edge of the branches, mealy, as is the whole plant, flat, or rising, resembling saucers. DILL.

Trunks and branches of trees: whitest on the sloe. DILL.

P. Jan.—Dec.

β HUDS. 540.—Leaves broader. Mealy warts smaller, more frequent, so that the edges become curled. DILL. 173.

Dill. 23. 63. D.

γ HUDS.—Leaves broader, stiffer. Warts larger, less frequent. DILL. 173.

Dill. 23. 63. E.

See *L. calicaris*.

LI'CHEN *fascicula'ris*. Leafy; of a jelly-like *cluster* substance. Tubercles turban-shaped; in clusters; larger than the leaves. LINN.—Tiled. Leaflets hand-shaped, nearly upright. HUDS. 536.

Fl. dan. 462. 2.—*Dill.* 19. 27.

Root-leaves minute, and as the whole of the plant of a glossy jelly-like appearance, resembling a Tremella. *Tubercles* large in proportion to the leaf, numerous, mostly on fruitst. lopped at the end, surrounded with a blunt border. LINN.—Observable in October and November, forming roundish raised substances, with numerous tubercles rising from fleshy leaves interlaced and connected. *Leaves* examined

examined separately, pellucid, dirty green, not $\frac{1}{4}$ inch long. *Tubercles* at first small, convex, the colour of the leaves; when larger, flat, or a little hollowed. DILL.

Woods and garden walks. DILL.—Trunks of trees and stones. HUDS.—Shady places on the North side of trees, particularly ash. Dr. BURGESS in *fl. scot.* 841.—Heaths. RELH. n. 1029.

P. Jan.—Dec.

ash LICHEN *fraxin'eus*. Leafy, straight; oblong; spear-shaped; somewhat jagged; pitted; smooth. Saucers on short fruit-stalks.—

Dill. 22. 59.—Hoffm. lich. 18. 1. 2.—Tourn. 325. A, B.—Happ. iii. Lichen 6.—Walc. No. 9.—H. ox. xv. 7. row the last, 3 and 4; row 3. 14.—Mich. 36. 1, considered by Weis as a variety.—(H. ox. ib. row the last, 5, is *L. calicaris*; and ib. t. 7. f. 9 and f. 19, in Haller, and cop. into Fl. ang. must be an error of the press or transcribers.)

From 1 to 6 inches high, varying in shape, wrinkled or meshed, with hollows on each side. Leaves of the younger plants, less wrinkled, shorter, spear-shaped. Branches but few, rising from one common stem, divided into several segments, terminating in pointed horns. Flexible when moist, more rigid and paler when dry. Colour on both sides glaucous, or pale ash, yellowish with age. Saucers very common, on every part of the plant, circular, concave, obtaining a pedicle from the substance of the leaf, pale brown or flesh colour within. HOFFMAN.—Saucers mostly of a pale straw-colour, but sometimes of the same colour with the leaf. Leaf greenish ash-colour, stiff.

Trunks of trees, on poplar, apple, &c, but chiefly on oak and ash.

P. Jan.—Dec.

short-horned LICHEN *fucoi'des*. Leafy, very much branched, porous, whitish hoary. Branches bundled, cylindrical. Little branches rising to the same height, awl-shaped, bluntish. Tubercles lateral, flattish, mealy. DICKS. ii. 22.

Dill. 22. 60.

Has much affinity with *L. fuciformis*, in its tough leatherlike texture, but it is distinguishable by many marks. Dillenius's figure was taken from imperfect specimens. DICKS.—Narrow at the base, branching, branches the breadth of a straw, 1 to 2 inches long, greyish. Tubercles small, flat, mealy, on the edges and sometimes on the surface of the leaves, whiter than the rest of the plant. DILL.

Rocks in the Island of Jersey. DILL.—On rocks and wood on the sea shore near Gosport. DICKS.

L I ' C H E N *furfura'ceus*. Leafy, drooping, as if branny sprinkled with bran; segments sharp, black and pitted underneath.—

Hoffm. lich. 9. 2.—*Buxb.* ii. 7. 1 and 2.—*Dill.* 21. 52.—*Mich.* 38.

ord. 4. 1.—*Hedw. theor.* 31. 132, the seeds.—*Barr.* 1277. 3.

Saucers, the edges frequently bent back, making them appear convex. Mr. WOODW.—I never found a plant with saucers. WEIS p. 66. LEYSER n. 1147. Mr. NEWBERRY.—Plant expanding from a narrow base, more or less crowded and ascending: branches bent back, segments numerous, terminating in brownish-pointed horns. *Surface* greyish, rough with a powdery substance, often greenish; wrinkled and blackish underneath. *Saucers* rarely seen, large, nearly hemispherical, brown red within, placed on the surface of the larger branches. HOFFMAN.—*Leaves* often as if thorny at the edges, not rigid. DILL.

Trunks and branches of trees, and old pales. [Plentifully on Wild Tor-Rock, a large rock five miles from Chagford, Devonshire, and also on many of the smaller rocks of granite there about. Mr. NEWBERRY.] P. Jan.—Dec.

L I ' C H E N *glau'cus*. Leafy, depressed, lobed, smooth; shining edge curled, mealy.—

Dill. 25. 96.—*Fl. dan.* 598.—*Hoffm. enum.* 20. 1.—*H. ox.* xv.

7. row 4. 4.—(*Vaill.* 21. 12, and *Mich.* 50. *ord.* 24. 1, are *L. perlatus*.)

Leaves thinner than paper, of a mixture of white, ash-colour, and sea-green. LINN.—*Leaves* cut and curled like those of Endive, smooth and shining on both sides, pale sea-green, brown underneath, substance black. Edges of the segments of the leaves mealy. *Saucers* small, brown. DILL.

On the ground amongst stones and rocks, and on heaths. On Emmot-moor near Coln, Lancashire; and on Banstead Downs; near Moffat, and in Breckdalbane. P. Jan.—Dec.

L I ' C H E N *herba'ceus*. HUDS. 544.—Leathery, creeping, lobed, blunt, smooth, lovely green, without veins underneath. *Saucers* tawny. LIGHTF. 352.—Leafy, lobed, scolloped, herbaceous. *Saucers* brownish red. HUDS.

Hoffm. lich. 10. 2.—*Dill.* 25. 98.—*H. ox.* xv. 7. row 4. 3.

Large as one's hand, leaves tiled, roundish, variously cut, broad, blunt, scolloped. *Substance* flexible, soft and herbaceous when moist, but rather tough. *Surface* even, of a pleasant green, deeper coloured when dry, and changing to grey, glaucous, or brown. Underneath wrinkled, brown, whitish towards the margin, fibrous. *Saucers* numerous,

numerous, large, mostly towards the central parts of the plant, red brown. On stones as well as on trunks and roots of trees. *HOFFM.*—*Leaves* 2 to 3 inches long, crowded, variously cut and scalloped, segments blunt, short, thin, soft, smooth and even. *Saucers* numerous, small and large intermixed, red or yellow brown, with a greenish border; when full grown 1-3d of an inch diameter. *DILL.*
L. late-virens. Lightf. n. 62.

On ash trees in Ireland, on stones at Comb Floyd near Bishop's Castle, and on oaks between Carno and Mayne Loin in Merionethshire. What seems to be a variety of it near Wakehurst, Suffex. *DILL.*—Near Ivy bridge, Devonshire, and in Yorkshire and Cumberland, *HUDS.*—and Scotl. not uncommon. *LIGHTF.*—[On trees between Kendal and Bowness, and in many other parts of Westmoreland. *Dr. J. E. SMITH.*—On ash, sycamore, and oak in the North West part of Devonshire. *Mr. NEWBERRY.*] P. Jan.—Dec.

eryngo-leav'd LICHEN *islan'dicus.* Leafy, ascending, jagged; borders raised, fringed.—

Dill. 28. 111.—*Hoffm. lich.* 9. 1.—*Fl. dan.* 155.—*Blackw.* 599.—*Giseke* 50.—*Mich.* 44. 4.—*Buxb.* ii. 6. 1.—(*Fl. dan.* 597, are *L. polyrrhizus* and *pustulatus.*)

Saucers circular, very entire, placed on the leaf. *LINN. fuc. v.* 1085.—Crowded, connected, ascending, varying greatly in shape and size. *Leaves* often several inches high, cut and divided, segments remote, extremities ending in two short, blunt horns. *Surface* smooth, shining, channelled, wrinkled, brown or pale green; edges turned in, fringed with stiff bristles. *Substance* membranaceous, soft, not easily torn; horny and stiff when dry. *Saucers* on the ends of the broader lobes, but seldom at the extremity of the plant or at the edges; very large, fringed, purplish brown. *Fringe* sometimes wanting. *HOFFMAN.*

On the top of Snowdon and Glogwyn y Garned in North Wales, and only in small quantities. *DILL.*—On many mountains in the Lowlands and Highlands, on the Pentland Hills, on Scrape near New Poffo, on Creg-chaillech in Breadalbane.

The Icelanders boil it in broth, or dry it and make it into bread. They likewise make gruel of it to mix with milk; but the first decoction is always thrown away, for it is apt to purge. It has lately got a reputation for curing consumptive complaints.

β *LINN.*—Leaves narrower, the edges rolled in, the ends not fringed. *DILL.* 212.

Dill. 28. 112.—*Buxb.* ii. 6. 2; 5. 3 and 4.

Pale green, whitish underneath. Segments slender, curled. This is the plant in its young state when growing under Heath or other shrubs. *HOFFMAN.*

γ *HUDS.*

7 HUDS.—Shrubby, solid, very much branched. Branches straddling, somewhat compressed, smooth, with little thorns, angles blunt. LIGHTF. 883.

Hoffm. lich. 5. 2.—Dill. 17. 31.—Mich. 39. 7.—Vaill. 26. 8.
—H. ox. xv. 7. row 3. 11.

Little branches scarcely prickly, the ends forked, pointed. HUDS.—Tufted, shrubby, much branched, 1 or $1\frac{1}{2}$ inch high. Branches interwoven, compressed pitted on each side, dividing and subdividing in forks, ending in fine thorns; dark brown when wet, almost black when dry, white within. Saucer-like tubercles terminating the larger branches, red brown, thorny at the edge, horizontal. Not often found with saucers. HOFFMAN.

L. hispidus. Lightf. 883, and 830. Relh. 1030.

On Stieperstone, Shropshire.—Heaths about London, and hilly parts of Cambridgeshire. DILL.—[On rocks in Dartmoor, Devonshire. Mr. NEWBERRY.]

8 HUDS. 839.—Little branches round, hollow within, not fringed. LINN.

Dill. 17. 32.—Fl. dan. 879?

Extremely different, but its lurid hue, the redness at the base, and a gradation of specimens prove them to be one and the same plant. LINN.—This elegant plant is not more than $\frac{1}{2}$ inch high, spreading, without any proper stem; branches very slender, interwoven like lace; divisions forked. DILL.

7 *L. islandicus*. LINN.—See Lightf.

L. pubescens, according to Lightf. 893.

On Snowdon. DILL.—Glyder Vawr near Snowdon. PENN.

L I ' C H E N *juniperinus*. Leafy; jagged; curled; *juniper* tawny. Saucers livid coloured.—

Hoffm. lich. 7. 2.—enum. 22. 1.

Tawny, neatly jagged. LINN. lapp. 344.—Differs from *L. parietinus*, as follows. Colour pale yellow. Leaves loose, nearly upright. Saucers, the disk brown. LINN.—Forming a loosely tiled tuft, divisions rather upright; segments variously unequal, border curled, rough with minute black dots. Surface wrinkled, green yellow when moist, tawny when dry. Pitted, smooth and dull yellow underneath. Roots, small scattered black fibres. Saucers at the edge; chestnut colour. HOFFMAN.—Doubtful whether this species has been found here, for some suppose Mr. Hudson's *L. juniperinus* to be only a variety of the *L. parietinus*.

Trunks and branches of trees.

P. Jan.—Dec.

The country people in Sweden esteem it a specific for the jaundice, and use it to dye their woollens yellow.

jagged LI'CHEN *laciniatus*. Leafy, creeping, between indented and lobed; smooth. Lobes indented. Saucers tawny. HUDS. *ed.* i. and ii. 544.

Mich. 46.—*Dill.* 26. 99.

Perfectly distinct from *L. herbaceus*. DR. J. E. SMITH.—Light-foot's description very good, but the young *saucers* have more the appearance at first of warts than tubercles, being merely risings in the substance of the leaves, with a small perforated point in the center. As these swell the edges recede and the disk is discovered. I have always seen the *shields* and *balls* on the same plant, and if it be true that these and the shields are distinct parts of fructification, the glomerula must be male and not female, as Micheli, and after him Scopoli have supposed; as Hedwig has clearly proved the seed-vessels and seeds to be situate in the shields of such species as he has examined, from whence analogy will certainly point them out to be so in all. MR. WOODWARD.—Spreading in a circular form to a large size, greyish blue, smooth and even, rough underneath and dirty white or brown, with numerous fibres. *Leaves* solid, tough, rather leathery, variously and elegantly cut. *Saucers* the size of a lentil, reddish, surrounded with a blue grey granulated border. DILL.

L. glomuliferus. Lightf. 853.

On the road between Carno and Main Lloyne. DILL.—[On trees on the great Island in Winandermere, and in the woods at Corby Castle, Cumberland. DR. J. E. SMITH.—On ash, sycamore, and oak, in the North West of Devonshire. MR. NEWBERRY.]

P. Jan.—Dec.

*membrana-
ceous*

LI'CHEN *membranaceus*. Leafy, depressed, between plaited and wrinkled, mealy, whitish brimstone-coloured. Saucers somewhat concave, of the same colour. DICKS. ii. 21.

Dicks. 6. 1.

Leaf membranaceous, very thin, widely spread out, growing closely to the ground, whitish, covered with a thin yellowish mealiness, black underneath. *Saucers* few, minute. DICKS.

On rocks thinly covered with soil in the Highlands of Scotland.

blackish

LI'CHEN *nigrescens*. Leafy, jelly-like, roundish, lobed, wrinkled, blackish green. Saucers crowded, tawney red.—

Dill. 19. 20.—*Buxb.* i. 61. 3.—(*Fl. dan.* 470. 3, is *L. lacer* of Retz.)

Leaves jelly-like, expanded in a circle, resembling a bat's wing; sometimes destitute of saucers, and covered with numerous small tubercles,

tubercles: lobes very blunt. *Saucers* near the centre of the leaves. **LIGHTF.**—*Leaves* broad, flat, between scolloped and lobed, in substance as well as colour much resembling a bat's wing, sometimes covered in the place of saucers, with granulations of the same colour as the leaf. *Saucers* very numerous, minute, at first appearing like tubercles of the same colour with the leaves, with a slight hollow at the top; afterwards expanding, and at length flat; border of the same colour with the leaf. The progress from tubercles to saucers shews that there exists no absolute distinction between these. **MR. WOODWARD.**

L. Vespertilio. Lightf. 840.

Trunks of trees, rocks, stones and walls. [In two or three places near Bungay, on old willows and elms, never with saucers, always with great plenty of the granulations. **MR. WOODW.**—About the bodies of old oak, ash, and sycamore trees near Holworthy, Devonsh. abundantly with innumerable shields. **MR. NEWBERRY.**]

A. Oct.—June.

L I ' C H E N *prunast'ri.* Leafy; rather upright; *blackthorn* pitted; white and downy underneath.—

Dill. 21. 55.—*Vaill.* 20. 11, 12.—*Ger. em.* 1377. 1.—*Mich.* 36. 3, *ill done, if the plant.*

From 1 to 3 inches long, sometimes mealy, sometime not; leaves and segments broad, flat, like stags horns, pale bluish grey, hoary or woolly underneath, by which and by its softness it is readily distinguishable from every other species. *Saucers* on plants which are shorter and less branched, fixed to the ends of the branches, rather paler and whiter than the leaves, brownish with age. **DILL.**

Trunks and branches of trees, on old willows it is softest, on blackthorn whitest. **DILL.**

P. Jan.—Dec.

It has a remarkable property of imbibing and retaining odours, and is therefore the basis of many perfumed powders.—

L I ' C H E N *pulmona'rius.* Leafy; jagged; blunt; *Lungwort* smooth; pitted above, downy underneath.—

Hoffm. lich. 1. 2.—*Garf.* 340.—*Dill.* 29. 113.—*Mich.* 45. ord. 14.—*Matth.* 1039, *imit. in Lob. obs.* 647. 2, *which repr. in ic. ii.* 248. 1, *Dod.* 474. 1, *Ger. em.* 1565. 1, *and cop. in Park.* 1315. 1; *and imit. in Ger.* 1375. 1, *which repr. in Matth. a G. B.* 733. II.—*Fuchf.* 637, *imit. in Trag.* 524, *and also in Len. i.* 219. 3.—*H. ox. xv.* 7. row 4. 1. p. 634.—*Blackw.* 335.—*Nech. meth.* 1. 7, *a target.*

Targets grow upon the leaves. **LINN. fl. succ.**—Flat, broad, loose, irregularly lobed; lobes indented, about an inch broad, several inches

inches long, cloven at the end, and lopped. Substance flexible, white and woolly within. Surface fine green, bluish when dried, brownish with age, spread over with an elevated net-work, with hollows in the interstices. *Warts* mealy, crowded, on the edges of the leaf or on the rising edges of the net-work. *Saucers* in the hollows, or at the edges of the leaves, facing horizontally, circular, 2-10ths of an inch diameter, often 2 or 3 together, brown red, or dark purplish. The plants with saucers are not very common, but are chiefly to be found on the higher branches of trees, in which situation also other Lichens, seldom yet found with saucers, must be looked for, as the *caperatus*, *glaucus*, *saxatilis*, &c. HOFFMAN.

Lungwort.—Hazel Rag, or Hazel Crotches, North of Ireland.—Rags, Herefordshire.

On the trunks of old trees, principally oaks, in shady woods.—On heaps of stones in moist shady places. RAY in *Dill.* P. Jan.—Dec.

It is reckoned very efficacious in consumptive cases; this opinion merits a further investigation.—Woollen cloth boiled with it became of a durable orange. RUTTY.—The people of Hertfordshire dye their stockings with it of a durable brown. DILL.

saturnine LICHEN *saturni'nus*. Leafy, with rounded lobes, blackish above, woolly and ash-coloured underneath. Saucers reddish-brown, bordered. DICKS. ii. 21.

Dicks. 6. 8.

Leaf depressed, somewhat plaited, slightly wrinkled above, of a bluish or brownish blackish hue, very woolly underneath. *Saucers* scattered, reddish or brown; border of the same colour. DICKS.

Trunks of trees, Scotland.

warty LICHEN *scrobicula'tus*. Scop.—Leafy, creeping, roundish, somewhat lobed, scolloped, wrinkled, warty. Warts mealy. Saucers very minute, tawny. HUDS.

Hoffm. pl. lich. 1. 1.—*Dill.* 29. 114.—*Mich.* 49. ord. 21.—(*H. ex.* xv. 7. row 4. 1, is *L. caperatus*.)

Leaf sometimes pierced with holes as if eaten through, being places where former warts have grown; border indented, curled; dirty brown underneath, light brown towards the edges. ST.—Leafy, broad, flat, variously lobed. Lobes indented; segments rounded, blunt, sometimes scolloped. Substance not very thick, flexible. Upper side sea-green, greyish in the hollows, grey or whitish when dry, yellowish when old; every part pitted or hollowed. *Warts* mealy, on the borders of the pits, the edge of the leaf or the end of the lobes, solitary, scattered or crowded, the size of a pin's head, brownish with age, often perforated. *Saucers* rarely to be found, seated

feated in the hollows, concave, border entire, brownish, center yellowish or reddish-brown. HOFFM.—*Saucers* hemispherical, hollow, yellowish, tawny at the bottom. HUDS.—Segments broad, blunt, moderately thick, rather stiff, with circular hollows, blue grey. *Saucers* mealy, granulated, partly on the leaves, partly on their edges. DILL.

Lichen verrucosus. Hudf.

Trunks and roots of trees, on large stones, and at the foot of rocks. Among the pebbles at Cockbush on the coast of Suffex. RAND.—On large stones near Dolgelle, Merionethshire. DILL.—On rocks just above Great Malvern, Worcestershire. ST.—[Near Kefwick, Cumberland. Dr. J. E. SMITH.—On ash, fycamore, and oak in the N. W. of Devonshire. Frequently growing on the same trunk with *L. herbaceus*, *laciniatus*, and *nigrescens*. Mr. NEWBERRY.]

P. Jan.—Dec.

LI'CHEN *tenuissimus*. Tiled; of a brownish greenish hue. Leaves fingered, with many clefts. *Saucers* immersed, brownish-red, with blunt borders. DICKS. 12.

Dicks. 2. 8.

Minute, and elegant. Leaves minute, brown when dry, of a tender membranaceous jelly-like substance, with many clefts at the ends; segments strap-shaped, unequal, expanding, somewhat fringed. *Saucers* proportionably large, with imperfect borders, the younger hollow, pitcher-shaped, on the surface of the leaves and of the same colour, the older flat, sometimes convex, of a dirty red. DICKS.

On sand-banks, near Norwich. [On dry sand banks usually amongst moss. Norfolk, not unfrequent. Mr. WOODWARD.]

LI'CHEN *trapeziformis*. ZOEG. fl. isl. 15.—Leaf minute, with rounded angles, thickish, dark green. Tubercles dot-like, under the surface of the leaf; at length elevated and blackish. DICKS. ii. 22.

Hedw. stirp. ii. 20. A.—*Mich.* 54. ord. 36. 3, cop. in Dill. 30. 133.

On the ground on barren heaths near Croydon.

LI'CHEN *tremelloides*. Leafy, membranaceous, fringed curled and finely jagged at the edge. *Saucers* concave, tawny. HUDS.—Leaves transparent, LIGHTF.—somewhat transparent when fresh.—

Dill. 19. 31.—*H. ox.* xv. 7. ord. 3. 4.—*Mich.* 38. ord. 3, drawn too large, as *Micheli* observes.—*Linnaeus* refers also to *Dillenius's*

figures of the varieties below.—(Dill. 19. 33, is *L. sinuatus* of Hudf.
—Vaill. 21. 15, is *L. palmatus* of Hudf.)

So brittle that it can scarcely be separated from the plants to which it adheres. LINN. *succ. n.* 1138.—When dry becoming of a slate colour. *Saucers* very minute; numerous, reddish. LIGHTF.—*Saucers* of the size of turnip-seeds, circular; border sea-green, nearly entire; the disc flat, tawny. HUDS.—Adhering to Moss and fine grass on heaths. *Leaves* $\frac{1}{2}$ to 1 inch, flattish, variously cut into segments, fringed and curled at the edges; thin, pellucid, glaucous brown green. DILL.

Tremella Lichenoides. LINN.

Shady places on stones and trunks of trees, intermixed with Mosses. [On moist shady banks and thatched houses frequent, but seldom with saucers. Mr. NEWBERRY.] P. Jan.—Dec.

β LIGHTF.—Dill. 19. 32.

More blue than the preceding, less jagged, but the divisions deeper, bearing small tubercles of a flesh or reddish brown colour. DILL.

γ LIGHTF.—Dill. 19. 34.

Saucers extremely numerous, sitting, on the sides of the leaves, scarcely distinguishable by the naked eye, reddish; borders regular, of the same colour with the leaf. Mr. WOODWARD.—Grows densely crowded, but rather upright; the outer leaves less so, thin at the ends, larger than the central ones, deep green with a purplish cast; segments broadish, thin, flat, rather gelatinous, the ends very finely scalloped. DILL.

Footscray Wood, Kent. [Sandy banks, but not commonly found with saucers. Mr. WOODWARD.]

δ LIGHTF.—Dill. 19. 35.

In little dense tufts, upright, rather gelatinous, darker than the preceding, almost black. *Leaves* very short, very fine, segments capillary. DILL.

Footscray Wood and Darking.

Winter.

E. LEATHER-LIKE. *Substance resembling leather.*

thrush LI'CHEN *apthofus*. Leathery, creeping; lobes blunt, flat, sprinkled with warts. Targets on the edge, ascending.—

Hoffm. lich. 6. 1.—Dill. 28. 106.—*Fl. dan.* 767. 1.—*Neck. meth.* 1. 8, a target.

Nearly allied to *L. caninus*. HUDS. 547.—Broader, shorter, thinner and less brittle than the *L. caninus*. Segments large, flattish, bluntly notched. Surface smooth, fine green when young, grey brown when old. *Warts* numerous, scattered, blackish. *Tubercles* terminating,
fine

fine purple, or red brown, egg-shaped, crooked, warty, on short pedicles. Roots very long. HOFFMAN.—Black brown underneath, woolly, not veined, whitening when exposed to the air: without radical fibres. DILL.

Shady, stony, mossy places, and on rocks. Dartmoor, Devonshire. Ingleborough, Yorkshire; elsewhere in Yorkshire and Westmoreland. HUDS.—At the foot of the Pentland Hills, Scotland. Mr. YALDEN in the *Fl. Scot.* 847. P. Jan.—Dec.

The country people make an infusion of it in milk, and give it to children that have the Thrush. In large doses it operates by purging and vomiting, and destroys worms.

L I C H E N *caninus*. Leathery; creeping; flat. *dog's*
Lobes blunt, woolly, and veiny underneath. Targets on the edge, ascending.—

Blackw. 336.—*Dill.* 27. 102.—*H. ox.* xv. 7, row 2. 1.—*Fl. dan.* 767. 2.—*Vaill.* 21. 16.

Targets brown, underneath smooth and flesh-coloured. LINN. *succ.* n. 1100.—Leaves covered with a kind of ash-coloured mealiness. Grows on the ground. Leaves a span long, 1 or 2 inches broad, widening as they grow out, indented, lobes short, blunt, single or in frata, membranaceous, grey dull dirty green; woolly and veined underneath, roots white fibres. Targets terminating, hard, solid, oblong, but rounded, tawny, reddish brown. DILL.

Ash-coloured ground Liverwort.

Woods, heaths, stony places, and hedges. P. Jan.—Dec.

This is the basis of the famous powder recommended by Doctor Mead to prevent the effects of the bite of a mad-dog, and recorded in our dispensaries under the name of Pulvis Antilyssus.

β LIGHTF. 846. HUDS.

Dill. 27. 103.—*Mich.* 44. ord. 12. 2.

Leaves thicker, stiffer, smaller, narrower, and deeper cut than the preceding, the edges curled, the colour darker, not veined underneath, or very superficially so. DILL.—In the same places with α, and more common. DILL. 204.

γ LIGHTF. 846. and HUDS.

Hoffman lich. 4. 1.—*Dill.* 28. 107.

Growing in tufts, divided into lobes 1 or 1½ inch in length, broadest at the end, the extreme lobes ending in numerous convoluted red brown finger-shaped targets, seated on pedicles. Surface smooth, dull green, changing to greyish or red brown when dry. Underneath veinous, downy, brownish. HOFFMAN.

About Perfeddgoed House not far from Bangor, Wales. DILL.

δ HUDS.—*Dill.* 28. 108.

Veiny and woolly underneath. DILL. 207.—Shorter, thinner, whiter underneath, more transparent and more variegated in its colours than the preceding. HOFFMAN.

On Rumbles Mear, near Helwick, Yorkshire. DILL.

saffron LI'CHEN *cro'ceus*. Leathery, creeping, roundish, flat, veined underneath, saffron-coloured. Targets scattered, grown to.—

Linn. lapp. 11. 3.—Dill. 30. 120, from specimens sent him by Linnæus.—Fl. dan. 263.

Leaves nearly flat, lying on the ground, roundish, narrower towards the base, about an inch over, cut at the edge, lobes blunt, sometimes entire, scolloped, 3 or 4 leaves forming a circle, but not regular, colour grey green, deep yellow underneath, which circumstance alone is sufficient to distinguish it. Targets flat, brown, few, 1 to 2 lines diameter. LINN. in DILL.

On a rock near the top of Bentelkerney, Breadalbane. Mr. STUART in Fl. scot.—Rocks and stony places, and groves on mountains near Money Musk, Aberdeenshire. HUDS. P. Jan.—Dec.

rust-spangled LI'CHEN *fuliginosus*. Leafy, creeping, indented-lobed, rough underneath, covered with a spongy down and pitted. Saucers flat, rust-coloured, edges pale. DICKS. 13.

Dill. 26. 100.

Ash-coloured sea-green, tinged of a lurid colour, yellowish underneath, with white hollows. DICKS. 13.—Leaves soft, tender, wrinkled and pitted above, and strewn with a footy-like powder; woolly and spongy underneath, with here and there a white hollow, but no fibrous roots. Saucers few, small, flat, rust-coloured, with a thin pale border. DILL.

Growing always upon Moss, and not directly attached to the substance on which it appears to grow. At the foot of Mount Cader Ideris, near Dolgelle, in August. DILL.—[In woods on the branches of trees. DICKS.—On trees near Ambleside. Dr. J. E. SMITH.]

flat-shield LI'CHEN *horizonta'lis*. Leathery; creeping; flat; not veiny underneath. Targets on the edge, horizontal.—

Dill. 28. 104.—Mich. 44. ord. 12. 1, and 6.—Fl. dan. 533? and 765?

Leaves variously divided into lobes, thin, not rigid, dull brownish green, brown underneath, but white at the edge, fibrous roots blackish. Targets egg-shaped, flat, on the edge of the leaves, yellow red. DILL.

Enfield Forest. DILL.—Moist rocks and stones, and at the roots of trees. HUDS. P. Jan.—Dec.

LICHEN *perlat'us*. Leafy, creeping; lobed; *pearl* smooth; mealy at the edge, black underneath. Saucers on fruit-stalks somewhat scolloped, brown. HUDS.—Leathery. LINN.

Dill. 20. 39.—Vaill. 21. 12.—Mich. 50. ord. 24. 1.—Barr. 1278. 3, a young plant.

I have examined thousands of plants without finding one with *saucers*. Mr. WOODWARD.—Blue grey, pitted, fringed. *Saucers* large, glass-shaped, on short pedicles, brown and smooth within, border when old, cracked. Very common, particularly about Oxford, on the trunks of oaks, but seldom found with *saucers*. DILL.

Trunks of trees and stones. [Scarce in Norfolk, but extremely common in Hertfordshire, particularly on the smooth bark of Beech, on which it grows with great regularity and beauty. Mr. Woodw.] P. Jan.—Dec.

LICHEN *resupina'tus*. Leathery, creeping, lobed. *reversed* Targets on the edge, facing downwards.—

Dill. 28. 105.—Mich. 44. ord. 13. 2.—Fl. dan. 764.

Readily distinguishable from *L. caninus* from the targets arising from the side of the leaf next the ground, and their being smaller. LINN. *fuec. n.* 1096.—Substance thin. Lobes bluntly scolloped, brown lead-colour, grey and whitish underneath, neither woolly nor fibrous. *Targets* numerous, varying in size, rust-coloured, fixed to the lower side of the leaf. DILL.

Trunks of trees, rocks, stones, on pebbles on the sea shore, and on the ground in stony places. P. Jan.—Dec.

LICHEN *sacca'tus*. Leathery, creeping; circular. *pitted* Targets sunk below the surface of the leaf, forming a kind of bag beneath.—

Mich. 52. ord. 31.—Fl. dan. 532. 3, left hand fig.—Dill. 30. 121.

—Fl. dan. *ib.* right hand fig. is a form in which I have never seen it.

Readily distinguishable from its having in place of a target a sack hanging down from the lower surface. LINN. *fuec. n.* 1102.—Leaves at first disposed in a circular figure, but little cut, when older divided into bluntly scolloped lobes, thin, tender, smooth, fine glaucous green. *Roots* from the under surface, fibrous. *Targets* in a hollow sack in the leaf. DILL.

Chedder rocks not far from a subterranean river. On Snowdon, at the rocks of Llyn Cwn y Ffynnon Velen, and about Glogwyn y Garnedh. DILL.—[About the mouth of Yordas Cave, near Inlgeborough Hill. Dr. J. E. SMITH.] P. Jan.—Dec.

wood LI'CHEN *sylvaticus*. Leathery; creeping; jagged; pitted. Targets on the edge; ascending.—

Dill. 27. 101.—Hoffm. lich. 4. 2.—Mich. 84. ord. 11, leaves and segments too broad, and the ends of some represented as fringed.

Large, lying on the ground, margin raised, irregularly divided into segments, which are lopped and angular at the ends. Surface dull brown green, red brown when old and dry, blackish at the ends, pitted, rough in the rising parts with minute black warts. Underneath spongy and woolly. Substance tough, flexible, greenish or dirty white. Targets few, at the end of the narrowest segments, small, oblong or roundish, brown red. HOFFMAN.

In shady woods at the roots of trees. In the wood called Enfield Chace, near Southgate, Middlesex, near Dolgelle, Merionethshire, Luston Vallet, Herefordshire. DILL.—Glen Eawood and other places about Kirkmichael, Dumfriesshire. BURGESS in *Fl. Scot.*

P. Jan.—Dec.

β Above of a fine green, the edges a little curled, and powdered with a bright yellow meal. Mr. NEWBERRY.

[On ash, sycamore, and oak in the North West of Devonshire. Mr. NEWBERRY.]

veined LI'CHEN *venosus*. Leathery, creeping, egg-shaped, flat, veined and woolly underneath. Targets at the edge, horizontal.—

Dill. 28. 109.—Hoffm. lich. 6. 2.—Mich. 44. 3. 5.—Dill. 28. 110, in its young state.

At first small, circular, flat on the ground; when older raised up, 1 or 1½ inch over, oblong or egg-shaped, border divided into a few segments, but irregularly and obliquely. Surface greenish, grey or brown when dry; white and brown variegated underneath, with large veins, thick, woolly, brown, dividing at the extremities. Root at the base of the leaf, wedge-shaped, short. Targets at the end of the lobes, sitting, concave or convex, circular, horizontal, dark brown purple. HOFFMAN.

Moist rocks under shady brows in several parts of Glenkill Linn, and Glenkill Burn, in the parish of Kirkmichael, Dumfriesshire. Dr. BURGESS in *fl. Scot.* 844.—Moistish stones and rocks about Dunkeld, Scotland.

P. Jan.—Dec.

F. SOOTY.

F. SOOTY. *Adhering only by one point. Surface as if sprinkled with foot.*

L I ' C H E N *deus'tus.* Surface on both sides even.— *smutted*
Dill. 30. 117.—Vaill. 21. 14.

So brittle, that unless when moist, it cannot be separated from the rocks without being torn. LINN. *fuec. n.* 1105.—Circular, 1 to 1½ inch diameter, lobed, leathery, grey and soft above, rather roughish, and brown grey or blackish underneath. *Targets* small, black, but little raised. DILL.

St. Vincent's rocks near Bristol. DARE in Dill.—About Llanberris.
Mr. DAVIES in *fl. ang.* P. Jan.—Dec.

L I ' C H E N *minia'tus.* Umbilicated, hunched; *cloudy* dotted; tawny underneath.—

Jacq. *misc.* 11. 10. 3.—Bolt. 131. C.—Dill. 30. 127.—Hall. *enum.*

2. 2. at p. 91, repr. in *hist.* 47. 2, at iii. p. 88.—Fl. *dan.* 532. 1.

—Mich. 54. *ord.* 36. 1.—(Vaill. 21. 14, is *L. deustus.*)

Leathery, thick, tough, strong; firmly fixed to rocks by a central root, irregular in shape, generally lobed, colour that of coffee with plenty of cream added to it; apparently scaly on the surface, but they are small brown dots, turning blackish, underneath ochrey red. Shrinks and twists much in drying. JACQUIN.—*Leaves* many together, outer ones by far the largest, waved at the edge. Inner leaves crowded, edges turned down and indented so as to have a wrinkled or curled appearance. DILL.—*Dots* of the colour of red lead. Mr. WOODWARD.

On rocks and large stones. [A rock at Ilam, Derbyshire, is covered with it for several yards. Mr. WOODWARD.]

P. Jan.—Dec.

β **L I G H T F.** 358. HUDS. 549. Plant dusky olive. BOLT.—Leaves elevated and coiled like hollow cylinders. LIGHTF.

Fl. *dan.* 532. 2.—Mich. 54. *ord.* 36. 2.—Bolt. 131. 6.—(Dill. 30. 128 and Bolt. 131. α. is a distinct species.)

On rocks mixed with α. [Ilam, Derbyshire, growing with α. Mr. WOODWARD.]

L I ' C H E N *polyphyl'lus.* Composed of several leaves; *smooth* even on both sides; greenish black; *scalloped*.—

Jacq. *coll.* ii. 16. 1. α to i.—Dill. 30. 129.—(Mich. 54. *ord.* 36. 2, is *L. miniatus* β.—Hall. 47. 5, at iii. p. 88, is a different plant.)

Leaves growing from a single stony root, lying in a circle, tiled, inner ones the smallest, thin, smooth on both sides, neatly scalloped, rusted brown above, darker underneath. DILL.

On rocks and stones. On Snowdon, at Llyn Llydaw rocks, and about Llyn Cwm y Ffynnon lās, and on the tops of the mountains Cwm Brwynog towards Ardhu, near Llanberris, Caernarvonshire. DILL.—Rocks on the Highland mountains. LIGHTF. [ST.]

P. Jan.—Dec.

fibrous LI'CHEN *polyrhi'zus*. Composed of several leaves, of an even surface on both sides; fibres numerous. LINN.—Smooth above, fibrous and black underneath. LIGHTF. 864.

Hoffm. lich. 2. f. 3. 4.—(Not *Hoffm. lich.* 26. 3.)—*Hall. enum.* 2. 4, at p. 91; repr. in *hist.* 47. 4, at iii. p. 88.—*Dill.* 30. 130.—*Fl. dan.* 597. 1.—(*Dill.* 30. 118, and *Fl. dan.* 471. 3, are *L. torrefactus*.)

Plant circular, expanded, thick, some inches over, edge curled, irregularly nicked and scolloped. Surface wrinkled or plaited, grey white, sprinkled with minute dots, sometimes cracked, sometimes powdery, sometimes smooth. Under side very black, closely set with short forked tendrils; root central. Not quite certain that it is the plant of Linnæus. HOFFMAN.—Certainly the same as DILL. 30. f. 130, referred to by LINN. WITH.—Colour cinereous, darker towards the edges. Smooth above, underneath quite covered with fibrous roots, except near the centre which is naked and smooth. *Fruclifications* numerous, black, and as Dillenius describes them “surrounded with a margin and tubercled in the center.” Mr. RELHAN.—Besides the black fibres underneath, it seems to have a central root, which being broken off leaves the bare place mentioned by Mr. Relhan, and figured by Hoffman, which further satisfies me that the plant of Hoffman, Dillenius, and Lightfoot, are the same. WITH.

In the same places with *L. polyphillus*. DILL.—On rocks in the Highlands, LIGHTF. ST.—and Lowlands. Dr. BURGESS in *Fl. Scot.*—Clark's park and paradise near Money Musk, Aberdeenshire.

P. Jan.—Dec.

button LI'CHEN *probofside'us*. Umbilicated. Targets turban-shaped, lopped, perforated.—

Hedw. stirp. ii. 1. A.—*Jacq. misc.* ii. 9. 2.—*Dill.* 29. 116.—*Fl. dan.* 471.

Leaves an inch diameter, roundish, circular, unequally and bluntly lobed at the edge, with a root from the center, smooth underneath, here and there throwing out a fibrous root, above flatish, or somewhat twisted, ash-coloured, roughened with brown elevated points. Targets scattered over the surface, black, very

fin. 11.

small, pierced with a pore down to the leaf, with a broad flat edge. LINN.—Flat, extending every way from a central root. Deeply divided into lobes; irregular and curled at the edge. HEDWIG.—Root stony. Leaves not more than an inch long; loose, broad, concave, segments fringed, smooth on both sides, not shining, when wet pellucid like horn, dull grey green. DILL.—Targets sitting, or on pedicles, convex, often marked with concentric circular lines. JACQ. misc. ii. 81.

On the rocks called Llyn Llydaw, and near Llyn Cwm y Ffynnon Iâs; also on the tops of the mountains from Cwm Brwynog, towards Ardhu, near Llanberris; and on the highest rocks of Berwyn mountain, Derbyshire. DILL.—Rocks on the Highland mountains. LIGHTF. [ST.].—[On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY.] P. Jan.—Dec.

L I ' C H E N *pullus*. WOLF in Jacq. misc. ii. 83.— *dark brown*
Umbilicated, smooth on each side, between plaited and curled, lobed, pimpled underneath; above beset with convex depressed targets. MURR. in syst. veg. 962.—Above broken, black underneath. Targets compressed, of the same colour. DICKS. ii. 23.

Jacq. misc. ii. 9. 3.

Leaves thin, tough, leathery, circular, fixed to a central root, pimpled, lobed, curled. Tubercles like targets, roundish, protuberating, sitting, marked with serpentine or concentric lines. JACQ. misc. ii. 83.

Rocks on the mountains of Scotland.

L I ' C H E N *pustulatus*. Pitted underneath; sprinkled *fringed*
over with a black bran.—

Hoffm. lich. ii. 28. 1. 2.—29. 4.—Dill. 30. 131.—Fl. dan. 597.

2.—Mich. 47, much larger than I have ever seen it.—Vaill. 20. 9.

Greenish when moist. LINN.—Root single, central, of a stony consistence.—Leaf single, concave, circular, 2 to 5 inches over, thin, membranaceous, lobes broad, shallow, deeper in the old plants, covered with numerous pustules, round or oblong, hollow, opening under the leaf. Plant when wet brown green at the edge, leaden grey in the center, dirty yellow to blackish underneath. Substance white. DILL.—Saucers very rare, only found on the very largest plants, amongst the pustules, circular, black, flattish; border thin, of the same colour. Plant flexible when wet, brittle when dry. HOFFM. Lich. ii. 1. p. 14.

On rocks with a South exposure under Keven Lees Castle, Radnorshire, and on a large mass of rock on the right of the road from Penmorvay

Penmorvay to Dolbelmen, Caernarvonshire. DILL.—Near Halifax, Yorkshire. BOLT. in *Huds.*—In Scotland. LIGHTF.—[Malvern Hills, Worcestershire. ST.] P. Jan.—Dec.

A beautiful red colour may be prepared from it. LINN.—And it may be converted into an exceedingly black paint.

crumpled LICHEN *torrefac'tus*. Blackish brown, wrinkled above, reticulated and fibrous underneath. Warts black, curled. LIGHTF. 362.

Hoffm. lich. 2. 1. 2.—*Dill.* 30. 118.—*Fl. dan.* 471. 3.

L. polyrrhizos. HUDS. 550.

Plant expanded, circular, 2 or 3 inches over; thick, rigid, brittle when dry; edge indented, segments short, irregularly scolloped, and ragged. Surface black, brownish towards the center, texture like leather, rough, tubercles black semi-globular grains. Under side smooth, grey brown, reticulated with veins, no root but in the center. HOFFMAN.—Targets black, oval, like protuberating warts, wrinkled. DILL.

Found in the same places with *L. corneus*. DILL.—On rocks and stones. On St. Vincent's Rocks, near Bristol. HUDS.—About Llanberris. Mr. DAVIES in *Fl. ang.*—On the Highland Rocks frequent. LIGHTF.—[On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY.] P. Jan.—Dec.

G. GLASS-SHAPED. *Receptacle like a drinking glass.*

cup LICHEN *pyxida'tus*. Glass-bearing, simple, finely scolloped. Tubercles brown. LINN.—Foot-stalk upright, cylindrical, supporting a glass-like cup. Tubercles on the edge, roundish. HUDS.

Great is the difficulty of ascertaining which of the numerous appearances of this tribe are species, and which varieties. Linnæus has made almost all distinct species, Mr. Hudson varieties, the truth probably lies between both extremes. Mr. WOODWARD.

α *Vaill.* 21. 8.—*Dill.* 14. 6. *A. B.*—*Walc.* No. 9. f. 2.—*Mich.* 41. ord. 8. 1, *K*, the first *L. Q.*—*Tourn.* 325. 2; *D.*—*Ger. em.* 1560. 6, *cop.* in *Park.* 1308. 11.—*Vaill.* 21. 7, is thought by *Dill.* to be the same plant grown old.

Crust at first granulated, in time forming leaves which are of no certain figure, small, cut at the edge, greenish above, white underneath. *Tubes* $\frac{1}{2}$ to 1 inch high, springing from the base of the leaves, thickest upwards, and expanding at the summit like a drinking glass; scolloped at the edge, the hollow of the upper expanded part separated by a partition from the hollow of the tubular part below. These tubes are of a light grey colour; sometimes mealy. DILL.

Cup-moss.—Heaths, woods, banks, and rocks, and about the roots of old trees. P. Jan.—Dec.

The powder of this, and a decoction of it were formerly given to cure the Chin-cough.

β New cups rising from the center of those below.

Fl. lapp. n. 431. *fuac. n.* 1111.—*Dill.* 14. 6. *D to H.*—*Vaill.* 21. 5. —*Walc. f.* 3.

Cups sometimes rising one out of the other to 5 stages, and sometimes with small sitting brown or blackish tubercles. LIGHTF.

γ *Fl. fuac.* Cups proliferous from the edge.

Vaill. 21. 9.—*Dill.* 14. 6. *I.*—*Walc. f.* 4.—*H. ox.* 15. 7. 4, p. 634.—*Mich.* 41. 7 and 8.

Cups rising sometimes to 4 stages. Stalks sometimes leafy. LIGHTF.—Frequently covered with much greenish meal, and a leafy crust, but the base is only a greenish crust, not leafy. DILL.

γ HUDS.—Proliferous, with tubercles.

Vaill. 21. 11.—*Dill.* 14. 6, C, K, L, M.

L. tuberculatus. Relh. n. 879.

Heaths and such like dry places, on stones and trunks of trees covered with a thin coat of soil. DILL.—Woods and walls. RELH.

P. Jan.—Dec.

δ HUDS.—*fimbriatus.* Glass-bearing. Cup simple, finely toothed. Stem cylindrical. LINN.

Dill. 14. 8, A, B.—*Happ.* iii. *Lichen* 2, a and c.—*Mich.* 41. ord. 8. 5 and 4.—*Vaill.* 21. 6.—*Mich.* 41. ord. 8. 4, is also referred to by Linnaeus, on account probably of its cylindrical stem, though the edge of the cup is very entire.—(*Dill* 14. 9, is *L. cornucopioides*.)

Stems slender. Tubercles and cups small, the latter finely serrated at the edge. Leaves lying on the ground, small, variously cut, grey green, less grey than the cups. Tubercles small, brown, fixed to the little teeth of the cup, not commonly occurring. DILL.

Lichen fimbriatus. Linn. Lightf. Relh.

Moors, heaths, dry pastures, common.

P. Jan.—Dec.

ε HUDS.—Proliferous from the serrated edge of the cup. LIGHTF.

871.—Sometimes to 3 stages. HALL.

Dill. 14. 8. C. and *Happ.* iii. *Lichen* 2.—*Vaill.* 21. 9.—(*H. ox.* xv. 7. 4. p. 632, is *L. pyxidatus* γ.—*Mich.* 42. P. P, should seem to be *L. cornucopioides* β.)

ζ Trumpet-shaped.

Dill. 14. 10.—*Mich.* 41. 6.—*Vaill.* 26. 10.

Leaves compact, spread on the ground, variously cut, segments rather raised, fine green above, white underneath, rather thick, stiffish, large for the size of the plant and numerous, by which and by the smallness of the cups it may be readily distinguished. Cups in

CRYPTOGAMIA.

in the winter grey white, in the spring brown. *Tubercles* not common, very small, scarlet, on short foot-stalks, the cups now splitting into segments forming stalks to the tubercles. DILL.

Lichen filiformis. Hudf. ed. I. 456. Relh. n. 882. — *L. tubiformis*. Lightf. 871.

Black Heath, near Greenwich, and other similar situations. DILL.
—Woods, at the roots of old trees, LIGHTF.—and walls. RELH.

n HUDS.—*exiguus*.

Dill. 14. 11.

Leaves numerous, small, glaucous green above, white underneath, smaller, shorter, broader, less cut and less upright than the preceding. *Cups* shorter, brown within, very small. DILL.

Heaths near Charlton and Woolwich.

Jan.—Feb. DILL.

9 HUDS.—Elk's-horn.—*Leaves* nearly upright, jagged, curled, bearing cups. *Cups* very short, conical. HUDS. ed. I. 457.—Simple, afterwards proliferous with black tubercles. LIGHTF. 872.—*Leaves* large, half upright, even, cartilaginous, flat, branches like an Elk's horn, edges rather turned in, grey or yellow green above, white underneath. *Cups* from the disk and the edges of the leaves, very small, slightly hollowed, rounded or angular, edges often very minutely toothed. DILL.

Dill. 14. 12, A, B, D.—Vaill. 21. 3.—Mich. 42. ord. 8. 1 and 2.

—H. ox. xv. 7. row 3. 3. at p. 632.—Barr. 1278. 4, may be a portion of the leaf.

L. foliaceus. Hudf. ed. I.—*L. alcornis*. Lightf. 872. Relh n. 1083.

1. As characterised by Mr. Hudson above.—Dill. *ib. f. A*.
Black Heath, and other dry heaths and pastures.

2. Very much branched; leaves at the divisions of the stem; branches terminating in cups; cups toothed, edged with tubercles. Dill. *ib. f. B*.

Snowdon.

3. Stem branched; branches running into leaves. Leaves upright, with winged clefts. Dill. *ib. e. f. D*.

Trowbridge, Wiltshire. DILL.

4. HUDS.—Cup simple; very entire. Fruit-stalk cylindrical. Tubercles scarlet. LINN.

Happ. iii. *Lichen* 5. 1.—Dill. 14. 7.—Vaill. 21. 4.—Mich. 41. ord.

8. 3.—(Vaill. 21. 11, is *L. pyxidatus* δ.—Mich. 41. ord. 8. 4, is *L. fimbriatus*.—H. ox. xv. 7. row 2. 4, is *L. pyxidatus* γ.)

Cups greenish grey, sometimes springing one out of another.—Tubes slender, cups at first but little hollowed, edged with beautiful scarlet tubercles. DILL.

L. cocciferus. Linn. Lightf. Relh.

Heaths.

Oct.—Spring. DILL.

× HUDS.—*cornucopioides*. Glas-bearing. Cup simple, shorter than the leaves. Tubercles scarlet. LINN.

Dill. 14. 9.

Crust leafy, greenish. Cups grey, edged with a leafy fringe, tipped with small brown tubercles, often proliferous. DILL.

L. cornucopioides. Linn. Lightf. Relh.

Moors and heaths, with *L. cocciferus*.

P. Jan.—Dec.

λ HUDS.—*cornutus*. Glas-bearing, nearly simple, somewhat bellying. Cups entire. LINN.

Dill. 15. 14.—Barr. 1277. 1.

Crust on the ground, supporting curled leaves, and these producing tubular fructifications, upright or bending, smooth or rough with a mealy crust, greenish or greying, hollow, entire at the top, pointed or forked, with or without tubercles, sometimes branched at the base. Tubercles on the edge of the tubes which then appear as if cut across. DILL.

L. cornutus. Linn. Lightf. Relh.

On moist heaths and moors.

P. Jan.—Dec.

μ HUDS.—Nearly simple; somewhat inflated; cups toothed. LINN.

Fl. lapp. 11. 5.—*Mich.* 41. ord. 7. 1.—*Dill.* 15. 18.

Stem upright, sometimes crooked, thick as a goose quill, sometimes with 1 or 2 branches, thickest upwards, ending in small shallow cups, edged with 4, 5, or more teeth. Colour dirty grey green. Surface mealy and woolly, often incrustated with crisp foliage. Tubercles small, reddish. Leaves small, cut, hoary grey, on the lower part of the stem. DILL.

L. deformis. Linn. Lightf. 876.

On rotten wood mostly in woods, DILL.—and heaths. RELH. n. 886.

ν HUDS.—Very much branched; inflated; cups toothed; tubercles brown. HUDS.

Dill. 15. 17.

Stem nearly cylindrical, expanding into a cup, which branches out into a number of sub-divisions, which terminate in their turn in other cups, divided into teeth, and tipped with brown tubercles.—Growing in clusters. Stems upright, stiff, thinnest at bottom, swelling at top into a cup, which branches out into numerous rays or spokes bearing other cups. Plant about 2 inches high, covered with a hoary wool. Cups on the branches bearing small brownish tubercles in the spring. Leaves small, scolloped, hoary. DILL.

L. ventricosus. Hudf. ed. I. 457. Lightf. 875.

On rotten wood, mostly in woods. DILL.

ξ HUDS.

ξ HUDS.—Very much branched; branches cylindrical; cups entire, edged with round tubercles. LINN.

Dill. 15. 19.

Tubercles numerous, scarlet. In doubt whether to reckon this as bearing cups. When without tubercles the stems terminate in blunt, unequal finger-like horns, forming a kind of cavity but not a proper cup. *Stems* hollow, 1 or $1\frac{1}{2}$ inch high, hoary grey, mostly branched, of unequal thickness, rough with greyish or brownish eminences. *Tubercles* terminating, numerous, fine scarlet. *Leaves* small, hoary, slightly cut. DILL.

L. digitatus. Linn. Lightf. Relh.

Barren heaths and woods at the decayed roots of trees. DILL. Feb.

o HUDS.—Dill. 15. 20.—Hag. 2. 9, is supposed by Hagen to be the same plant, but in his figure there is no appearance of any cup.

Leaves at the base small, scolloped, rather hoary. *Stems* $\frac{1}{2}$ to $1\frac{1}{2}$ inch high, slender, greyish, smooth, or with a leafy greenish crust. *Tubercles* terminating, generally on a broad base, somewhat resembling a cup, small, roundish; brown, black when dried. DILL.

Woolwich Heath. DILL.

Feb.

ω HUDS.—Dill. 14. 13.—H. ox. xv. 7. row 3. 6, p. 632.—Mich. 41. ord. 7. 5.

Stem in some plants tapering to a point, in others terminated by a cup tipped with tubercles. LINN.—*Leaves* at the base numerous, deeply cut, grey green, hoary underneath. *Stems* 1 to 3 or 4 inches high, but the more they are branched the shorter they are; at first grey, at length brownish towards the top, and wholly brown when in fruit; slender, hollow, smooth; top slender, except when bearing cups and tubercles, simple or branched. *Cups* small, ferrated at the edge. *Tubercles* on the teeth, roundish, reddish brown. DILL.

L. gracilis. Linn. Lightf.

Mountainous and rocky heaths. Leath Hill, Surry.

P. Jan.—Dec.

p HUDS.—Dill. 15. 16.—Mich. 41. ord. 7. 3, 4, 2.—Scheuchz. it. 1. 5. 3.—Vaill. 7. 7, said by Dill. to be ill done.

Leaves at the base, sometimes also fixed to the stem, small, finely cut, hoary green above, white underneath. *Tubes* greyish green, about two inches high, soft, hollow, simple or branched, thickest upwards, ending in shallow cups with oblong hollow horn-shaped spokes on the edge. These spokes are not branched, but they sometimes terminate in smaller cups, supporting other smaller spokes. *Tubercles* on pedicles on the edges of the cups, or terminating the branches, reddish brown. DILL.

Enfield Chase, Middlesex. DILL.

H. SHRUBBY. *Shooting into branches like a tree or a shrub.*

LI'CHEN *frag'ilis*. Shrubby; solid. Little branches *brittle* round, blunt. LINN.—Smooth. Little branches nearly round. Tubercles terminating, globular, hollow. HUDS. (*including L. globiferus as a variety.*)

Dill. 17. 34.—Jacq. Misc. ii. 9. 6.—Fl. lapp. 11. 4.

It cannot be gathered without breaking, except when moist, as it is more brittle than a Coralline which it also much resembles. LINN.—Stem and branches short, cylindrical, solid, brittle, blunt, rather shining, dirty white, often reddish at the ends; white within. JACQUIN.—Grows compacted together, shrub-like, 1 or 1½ inch high. Roots woody, brown black, penetrating the fissures of schistus rocks. Stems stiff, like ivory. Branches numerous, cylindrical, smooth, blunt at the end, forked or entire. Fruit-bearing plants thicker, broader, compressed, pitted and unequal. Tubercles hard, solid, globular, filled with sooty powder. DILL.

On rocks and stones on mountains and high heaths.

P. Jan.—Dec.

β HUDS.—Shrubby; solid; smooth. Tubercles globular; hollow; at the ends of the branches. LINN.

Dill. 17. 35.—Fl. dan. 960.—Mich. 39. 6.

Similar to *L. paschalis*, but smoother, leafless, and the branches terminated by globular tubercles, hollow with a small mouth, gaping spherically, black within. LINN.—Slender, very much branched, glaucous grey, 1 to 2 inches high, cylindrical, soft when fresh, stiff when dry, smooth. Tubercles terminating, numerous, globular, containing a black powder, the outer coat thick, cracking in 3 or 4 places. DILL.

L. globiferus. Linn. Lightf. 887.—*L. globosus*. Hudf. ed. i. 460.

Rocks at Tunbridge. On the Stieperstones, Shropshire. Snowdon, and in the Highlands and Lowlands. [Rocks in the mountainous parts of Dartmoor, Devonshire. Mr. NEWBERRY.—Rocks in the North of England. Mr. WOODWARD.]

LI'CHEN *musci'cola*. SWARTZ.—Shrubby, appearing *interwoven* as if crustaceous; very much branched. Branches very short, interwoven, blackish green. Saucers of the same colour. DICKS. ii. 23.

Dickf. 6. 9.

Rocks, growing on moss, on the higher mountains of Scotland.

LI'CHEN *Papilla'ria*. Shrubby, fistular, leafless, *madrepore* whitish. Branches very few, blunt, very short. Tubercles terminating, flesh-coloured. EMRHART in Dickf. 13.

Dill.

Dill. 16. 28.

Hardly $\frac{1}{2}$ an inch high. *Stems* slender, white, smooth, unequal, with here and there a knot, as if jointed. *Branches* very short, terminating, ending like the top of a double tooth. *Crust* cracked. *DILL.* Heaths. Near Bagshot on the road to Farnham. *DILL.* 107.

Spring. Winter.

incrusted **LI'CHEN** *pascha'lis*. Shrubby, solid, covered with little crustaceous leaves. —

Dill. 17. 33. — *Hoffm. lich.* 5. 1. — *Mich.* 53. 5 to 8. — *Fl. dan.* 151.

— *Happ. ii. Lichen* 2. — *H. ox. xv.* 7. 12. — *Scheuch. it.* 19. 4, at p. 136, *cop. in Pet. gaz.* 65. 7.

Stems very smooth, beautifully incrustated with leaves, especially when viewed through a magnifying lens. Eaten by Rein-deer. *LINN.* — Upright or decumbent, many roundish stems issuing from a larger stem, divided and sub-divided, the extremities bent, woody, flaccid when wet, pale sea-green to yellow or red brown. Young plants covered with a brittle crust. *Warts* very minute, numerous on the extreme branches. *Tubercles* like *saucers*, single or crowded, of a brown colour, are scattered over different parts of the plant. From 1 to 4 inches high. *HOFFMAN.* — Woody at the base, fixed like sea-weeds to the rocks. *Stems* tough, woody, variously branched, zigzag, 1 to 2 inches high. *Stems* incrustated, sometimes naked, especially in the lower part of the older plants. *Branches* generally incrustated with small granulations. *Tubercles* single, or in clusters, round, red brown, smooth. *DILL.*

Upon rocks on high mountains. [Near Ambleside, Cumberland. *Dr. J. E. SMITH.* — In the mountainous parts of Dartmoor, Devonshire. *Mr. NEWBERRY.*]

P. Jan. — Dec.

rein-deer **LI'CHEN** *rangiferi'nus*. Shrubby, perforated, very much branched, little branches nodding. —

Dill. 16. 29. — *Fl. dan.* 180. — *Mich.* 40. 1. — *Ger.* 1380. 5, *cop. in Ger. em.* 1572. 5, and again in *Park.* 1310. 8.

Branches perforated in the forks. *LINN. fuc. n.* 1117. — Light, brittle, hoary when dry; grey green or whitish, tender and soft when fresh. Surface covered with mealy particles. Has neither leaf nor leafy crust. *Roots* not easy to find; it adheres slightly to the earth and to Mosses, from which it readily separates. But many species of Lichen seem destitute of roots, and to be nourished by the leaves, or by a mucous matter at the base. About 2 inches high, divided and sub-divided into branches all the way up, the ends turning down. *Tubercles* small, roundish, reddish, shining, black when dry, on the terminations of the branches. *DILL.*

Heaths

Heaths and high exposed mountainous situations, DILL.—and woods. HUDS. P. Jan.—Dec.

The Laplanders could not exist without this plant. It is the food of the Rein-deer, which will grow fat upon it, and the Rein-deer supplies every necessary of life for the contented people of that inhospitable climate.

β Dill. 16. 30.—Fl. dan. 539.

Smaller branches reddish, and the whole when old turning brown. Tubercles darker brown than those of the preceding, more crowded, more frequently found. Branches sometimes bearing small crisp leaves. DILL.

In the same places with α. DILL.

LI'CHEN *siliquo'sus*. Shrubby, solid, compressed, *podded* somewhat branched. Tubercles lateral, concave. HUDS. ed. i. 460. ed. ii. 559.

Dill. 17. 38.—H. ox. xv. 7. row 3. 4.

Stems many, from a chalky base, upright, stiff, swollen but compressed, filled with a white fungous substance, 1 to 2 inches high, simple or with 2 or 3 forks; at first even, but with age furrowed lengthways and divided across like a pod containing seeds. In time these inequalities project like small warts, of a grey white colour, whilst the rest of the plant is grey green, becoming yellowish with age. DILL.

On the large stones scattered over the Grey Weathers, Wiltshire, and on rocks in Wales. DILL. P. Jan.—Dec.

LI'CHEN *subula'tus*. Shrubby; somewhat forked; *horned* branches undivided; awl-shaped.—

Dill. 16. 26.—Ger. 1374. 8, cop. in Park. 1308. 12, and J. B. iii.

767. 2.—Buxb. ii. 5. 2, represents it as beset with white warts.

—(Ger. em. 1561. 8, is *Acrostichum septentrionale*.)

Stems 1 to 2 inches or more in height, slender, grey, or greenish, white when dry, smooth, not branched at bottom. Leaves small, scolloped, grey, hoary underneath. Tubercles small, globular, solitary, red brown. DILL.—Stem sometimes fringed with a few scattered crustaceous leaves. Tubercles small, brown, globular, at the ends of the branches.

Horned Moss.

Woods and heaths.

P. Jan.—Dec.

β Branches forked. HUDS.

Dill. 16. 27.—Hag. 2. 10.—H. ox. xv. 7. row 3. 1. p. 632.

—Vaill. 26. 7, 7, 7.—Mich. 40. 4, and D.—(Barr. 1277. 2, is referred to by Dill. but seems more like *L. uncialis* β.)

Vol. III.

P

L. furcatus.

L. furcatus. Hudf. ed. I. 458. Lightf. 881. Relh. n. 891.

Branches more numerous and shorter than in the preceding, and also more leafy. *Tubercles* terminating, small, round, flesh colour or yellowish. DILL.

β Leaves remarkably crisped and leafy. LIGHTF. 882.

Dill. 16. 27. D.

Sometimes upright, sometimes bowed. Leaves and warts numerous. DILL.

radiated LICHEN *tristis*. Shrubby, solid. Little branches compressed, branched, blackish at the ends. Saucers terminating. LINN. *the Son*.—Smooth. Little branches nearly round, pointed. Saucers flat, radiated. HUDS. 559.

Web. 5.—Hall. *enum.* 2. 1, at p. 91, repr. in *hist.* 47. 1, at ii. p. 88.

—Dill. 17. 37.—Gunn. ii. 2. 9 to 14?

L. corniculatus. Lightf. 885.—*L. radiatus*. Hudf. 559.

Grows in dense tufts. Stems about 1 inch long, reclining, moderately broad, compressed, solid, smooth, divided into a few horn-shaped branches, when fresh brown olive, when dry blackish; stiff, tough, horny, pellucid when moist. *Tubercles* terminating, plano-convex, circular or oblong, of different sizes, blackish brown, fleshy, fungous and white within. In some plants *saucers* are produced at the ends of the branches, flat or gently concave, border regular, of the same colour with the saucer, sometimes bearing horn-shaped branches. These saucers being smaller than the tubercles are probably changed into tubercles. DILL.

On Snowdon, on the top of the rocks from Cwn Brwynog towards Ardu. DILL.—[On Carnedd Llewelin. Mr. GRIFFITH.]—Highland mountains, Rosshire, and Isle of Sky. LIGHTF. and HUDS.—[On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY.]

P. Jan.—Dec.

short LICHEN *uncia'lis*. Shrubby; perforated; little branches very short; sharp.—

Dill. 16. 22.

Quite hollow, and very brittle when dry. Mr. WOODWARD.—Grows in dense tufts. Stems short, but little branched, longer and more branched with age, hardly more than an inch high, yellowish or greenish white, quite white and brittle when dry. *Tubercles* very small, reddish brown, disposed like stars on the horn-shaped extremities of the branches. I have sometimes, though rarely, found some whitish scolloped foliage at the base. DILL.

Heaths and stony places in mountainous situations. [On dry heaths and rocks thinly covered with earth. In Dartmoor, Devonshire.

shire. MR. NEWBERRY.—On moors in the North of England. MR. WOODWARD.] P. Jan.—Dec.

β HUDS. 555. Larger and less crowded in its growth.

Dill. 16. 21.—H. ox. xv. 7. row 3. 7. p. 633.—Mich. 40. 2.—(Hall. 16. 21, in *Fl. ang.* is an error of the press.)

From 2 to 4 inches high. Stems thick, tender, smooth, forked again and again, but not much branched, armed at each division of the forks with soft thorns, open at the ends, terminating in 3, 4 or 5 rays. Tubercles infrequent, small, reddish. Plant when fresh, pale yellowish green, or whitish; quite white when dry. DILL.

High heaths. Leath Hill, Surry, and the heath between Lippock and Petersfield, Hampshire. DILL.

γ HUDS. 555. Branching like stags horns.

Dill. 16. 25.—Mich. 40. 5, and 3.—Hag. 2. 11.—Col. ecphr. ii. 83. 1, cop. in Park. 1310. 9.

Stem short. Branches numerous, wide spreading, short, hollow, cloven at the end, greenish, white within. COL. Ecphr.—Tubercles numerous, terminating, brown red. Leaves none. DILL.—Forms the connecting medium between the *L. uncialis* and *L. subulatus*. HUDS.

L. spinosus. Hudf. ed. I. 459, Relh. n. 1031. Lightf. 882, who from a comparison of the Dillenian herbarium was led to consider it as a variety of β.

Barren and exposed mountainous situations. DILL.

L I' C H E N *vermicula'ris*. Shrubby, smooth, somewhat branched. Branches spreading. Tubercles scattered. LINN. the Son, in *syst. veg.* 963.—Nearly cylindrical, awl-shaped, white. Tubercles lateral, globular. DICKS. ii. 23.

Jacq. col. ii. 12. 2.—Hoffm. lich. ii. 29, 1, 3.—Dickf. 6. 10.

In tufts. Issuing and diverging from one central point. Awl-shaped, 2 to 3 inches long; soft, hollow, snowy white, reclining, very rarely branched, sometimes here and there a little tooth is found, but no leaves. JACQ. coll. ii. 177.—Stems awl-shaped, tapering to a point, irregularly matted together, variously bending, rarely forked, here and there a short lateral branch, not unlike tubercles, hollow within, tough and pliable when moist, brittle when dry. HOFFMAN. Lich. ii. 1. p. 15.

Among moss on the higher mountains of Scotland.

I. THREAD-LIKE. Shooting into long wiry or thread-shaped branches.

L I' C H E N *articula'tus*. Thread-shaped; jointed; jointed little branches very slender, dotted.—

Col. ecphr. ii. 83. 2, *coarsely cop. in Park.* 1312. 5.—*Dill.* 11. 4.
—*H. ox.* xv. 7. *row the last,* 11.—*Mich.* 39. 1.

Plant white; 6 to 12 inches long. Stem thick, branches very long, terminating sub-divisions very fine, hanging down.—Sometimes smooth and regular, sometimes knotted; the smooth branches the finest, most flexible, and most sub-divided. DILL.

In woods on branches of trees. Wood near Stoken-church, on Beech near Burnley, Lancashire, and on Hazel in Gattley Park, Herefordshire. DILL.

P. Jan.—Dec.

bearded LI'CHEN *barba'tus*. Thread-shaped; pendant; somewhat jointed. Branches expanding. —

Dill. 12. 6.

Two feet or more in length, branches not much thicker than a sewing thread, greenish-white.—Not much branched, but the number of threads together form a considerably large bush or tail. These straight threads send out lateral fibres throughout their whole length, either simple or divided, standing out sideways, not pendant. *Saucers* few, rarely met with, small, flesh-coloured. DILL.

Branches of trees. Forest of Dean, Gloucestershire, and near Bishop's Castle. DILL.—Pine Forests, Scotland. LIGHTF.

P. Jan.—Dec.

scabrous LI'CHEN *exi'lis*. Thready, very much branched, matted. Threads hair-like, matted, opaque, rough, LIGHTF. 894.—decumbent. *Saucers* concave, very entire. HUDS. 562.

(*Dill.* 13. 9, is very properly referred to by *Lightf.* as representing the plant, but it is not asserted to be *Dillenius's* plant, which is considered by *Linnaeus* as his *L. pubescens*.—*Fl. dan.* 879. 2 ?)

Saucers nearly as large as white Poppy seed, hemispherical, bordered, black, the bottom blackish-brown, the edge very entire. HUDS.—Seems nearly related to *Conserua* from its delighting in wet places, but the threads are not jointed. LIGHTF. 895.—Seems to be between a *Lichen* and *Conserua*. I never could perceive a shield on one of the many scores I have examined. MR. NEWBERRY.

L. scaber. Hudf. n. 100.

On the most naked rocks of the Highland mountains. LIGHTF.—[On rocks whose surfaces lie nearly even with the ground, on the sides of hills, the soil of which is peat earth, in Dartmoor, Devonshire. MR. NEWBERRY.]

P. Jan.—Dec.

flowering LI'CHEN *flo'ridus*. Thread-shaped; branched; upright. *Saucers* radiated. —

Hoffm. lich. 30. 2.—*Col. ecphr.* 334. 3, *cop. in Park.* 1312. 3.
—*Ger.* 1372. 6, *repr. in Ger. em.* 1560. 5, and *cop. in Park.*
1312. 2.—*H. ox.* xv. 7. *row the last.* 14.—*Happ.* ii. *Lichen* 3.
—*Dill.* 13. 13. *A.*—*Mich.* 39. 5.

Grows very like a shrub. *Stem* very short, blackish. *Branches* wide-spreading, numerous, grey green. *Saucers* large, terminating, concave, smooth, fringed. *DILL.*—Colour bluish green, the larger branches tawny, large for the size of the plant; smaller branches upright, cylindrical, thickly set with horizontal hair-like fibres. *Saucers* large, terminating, slightly concave, pale yellowish colour, sometimes an inch in diameter; border fringed with long radiating fibres, which sometimes also grow out of the under convex greenish side. *HOFFM. lich.* ii. p. 19.

Branches of trees, especially oaks. *DILL.* P. Jan.—Dec.

β *HUDS. ST.*—Thread-shaped, very much branched, upright. Tubercles mealy, scattered. *LINN.*

Ger. 1372. 5.—*Dill.* 13. 12.—*Barr.* 1277. 4.

Stem very short, woody. *Branches* many, sending out shorter lateral branches 1 to 2 inches or more in length, grey green, beset with thin stiff fibres. *DILL.*

L. hirtus. *Linn.* *Lightf. Relh.*

Woods, thickets, and old hedges.

P. Jan.—Dec.

LI'CHEN *juba'tus.* Thread-shaped, pendant, com- *fennel*
pressed at the divisions of the branches.—

Dill. 12. 7, *imit. in Happ.* iii. *Lichen* 4.

In greatest perfection in winter and spring; hanging down like the tail of a horse. *Stems*, the upper and thicker ones compressed, brown green to blackish; the slender thread-like stems cylindrical, smooth, not hard, greenish, not much branched, but sometimes twisted; and very much matted together. *DILL.*

On rocks and old trees in the West Riding of Yorkshire. On rocks in Chorley Forest, Leicestershire, and on the side of the Derwent, Derbyshire. *DILL.*—Wales and Scotland. *HUDS.* and *LIGHTF.*

P. Jan.—Dec.

It is used to cure ulcerations of the skin; and it is eaten by Reindeer.

β *HUDS. LIGHTF. ST.*—Thread-shaped, branched, drooping. Branches straddling, serpentine and somewhat matted. *LINN.*

Dill. 13. 10.—*Fl. dan.* 262, *the stem too thick in proportion to the branches, if the plant.*

Stems stiff, cylindrical, diverging, variously bending, not crowded, 2 or 3 inches long, but little branched, grey to brown green. Growing on the trunks of oaks it does not hang down but clings to the bark. *DILL.*

L. chalybeiformis. Linn. Lightf.

Trunks of trees, stones, and old wood.

wool LICHEN *lanatus*. Thread-shaped, very much branched, drooping, matted, opaque.—

Jacq. misc. ii. 10. 5.—Dill. 13. 8.

Resembling the *L. pubescens*, but much finer, nearly as fine as hair, less rigid, nay rather soft, very much branched, decumbent, black green, opaque. JACQ.—Two or 3 inches long. Branches not compressed, blacker and more crowded than in the *L. jubatus*, diverging in various directions, more branched and sub-dividing into shorter and more numerous hair-like segments, matted together.

DILL.

Rocks and stony places. In Cornwall. About a Borth one mile from Bangor, North Wales. DILL.—In the Highlands and Lowlands. LIGHTF.—[On rocks on the sides of hills on Dartmoor, Devonshire. Mr. NEWBERRY.]

P. Jan.—Dec.

hairy LICHEN *plicatus*. Thread-shaped, pendant; branches matted together. Saucers radiated.—

Dill. 11. 1.—Matth. 62, imit. in Ger. 1369, and again 1156. 1, which repr. in Matth. a. C. B. 65. 1, and also in Lob. obs. 643. 2, which repr. at 583. 1, in ic. ii. 242. 1, and 155. 1; Dod. 471. 2, Ger. em. 1558 and 1339, and cop. in Park. 1312. 1; and in J. B. i. 6. 88.—Trag. 940, on the right hand branch of the tree.—(Mich. 39. 5, is *L. floridas*.)

Branches thread-like, not very thin, matted together, unequally divided into other branches, the slender divisions fibrous, rather stiff, grey. Saucers lateral and terminating, flat, or but little concave, thin, grey above, brownish underneath, without any proper border, but the edge fringed with radiating hairs. The old plants are covered with a rough, whitish, warty crust. DILL.

Tree Moss.

Branches of trees in thick woods, but rare. Woodcote Wood, Hampshire. A wood near Northwim, Hertfordsh. P. Jan.—Dec.

pubescent LICHEN *pubescens*. Thready, very much branched, decumbent, matted, shining.—

Jacq. misc. ii. 9. 7.—Dill. 13. 9, is cited by Linnaeus, but omitted by Mr. Hudson, who after Lightfoot places it under his *L. scaber*, which is the *exilis* of Lightfoot.

Very black, exceedingly tender, resembling very fine wool or rough silk. LINN. fuc. n. 1126.—Allied to *L. lanatus* but smaller. HUDS. 562.—Consisting of fine threads, greatly branched, matted, shining,

shining, decumbent, very black. JACQ.—Grows in dense tufts; branches and threads short, very fine, matted together, smooth, shining. DILL.

Rocks and stoney places in Westmoreland. HUDS. P. Jan.—Dec.

L I C H E N *vulpi'nus*. Thread-shaped, very much *brass-wired* branched, upright; branches nearly of the same length, angular; angles unequal.—

Jacq. misc. ii. 10. 4.—Fl. dan. 226.—Dill. 13. 16.

Lemon-coloured; always upright. Stems at first smooth, cylindrical, almost orange; paler with age, pitted, compressed, at length rough with a yellow farinaceous powder. JACQ.—Grows in clusters round the branches of trees, chiefly oak. Shrubby; branches divided and sub-divided, matted together in various directions, not more than 1 or 1½ inch long, cylindrical, thin, tender, soft in wet, rigid in dry seasons, paler or deeper yellow, terminating in short hair-like fibres. DILL.

Trunks and branches of trees. In a wood four miles from Basingstoke on the road to Salisbury. Corsley Heath, Somersetsh. About Slingford, Suffex. In Deu Park near Horsham, and Eridge Park near Tunbridge. Near Totteridge not far from Barnet, Hertfordshire. DILL.—On Dartmoor and elsewhere in Devonshire, and frequent in Somersetshire. HUDS. P. Jan.—Dec.

In Norway they mix this plant with powdered glass, and strew it upon dead carcases to poison wolves.—It dyes woollens yellow.

1320. T R E M E L ' L A. Star-jelly.

SUBSTANCE uniform; transparent; membranaceous; jelly-like, leafy.

ESS. CHAR. FRUCTIFICATIONS *scarcely perceptible; in a jelly-like substance.*

OBS. It differs from L I C H E N in having neither Tubercles nor Saucers.

T R E M E L ' L A *albida*. Sitting, jelly-like, of *whitish* various shapes, whitish. HUDS. 565.

Leaf sometimes with a tinge of sea-green, and yellowish, somewhat wrinkled, solid, semi-transparent. HUDS. n. 12.

On the half rotten, fallen, branches of trees, in thick woods.

A. Sept.—May.

T R E .

livid TREMEL'LA *adna'ta*. Round, tiled, livid.—

Adheres closely by its whole substance to rocks; has the appearance of the Agarics which grow on trees, but is nearly membranaceous. LINN. *fuec. n.* 1143.

Rocks and stones on the sea shore at low water. P. Jan.—Dec.

tree TREMEL'LA *arbo'rea*. Sitting, roundish, waved, blackish. HUDS. 563.—

Bull. 420.—*Dill.* 10. 15.—*Fl. dan.* 885. 3.

When fresh nearly transparent, with a blackish hue, which increases as it decays. It is very much wrinkled, the wrinkles when in a state of perfection fringed with fine whitish hairs. Mr. WOODW.—A membranaceous gelatinous substance, dull brown or reddish black, quite black when dry. Flat underneath; above raised irregularly into veins, and set with black tubercle-like dots. DILL. 54.—Waved and plaited, thick, pulpy, jelly-like after rains, never membranaceous; destitute of hairs. HALL. *hist.* 2038.

VAR. 1. *fusca*. Semi-transparent, brown.

Bull. 406. *B.* resembles it, but our plant is a less red-brown.

The plant occupies an irregular circular form, from 1 to 2 inches diameter. Substance like a stiff jelly of a dirty brown colour, divided down to the root. Lobes waved, plaited, 3-10ths of an inch broad, about 1-20th of an inch in thickness. When soaked in water it gives out freely to the water a colour like that of the deepest Madeira wine.

On the broken branch of a Hornbeam, on the pool dam, Edgaston Park. 26th June, 1792.

Witches Butter.

Trunks of trees. [Common on fallen wood and dead sticks, in woods. Mr. WOODWARD.] A. Sept.—May.

garlick TREMEL'LA *Al'lii*. Sitting, membranaceous, labyrinth-like, grey, white within. DICKS. 14.

Act. nov. Holm. 100. *Dan. p.* 286. *f.* 1.

Becomes hard when dry. DICKS.

On rotten roots of *Allium Cepa*; *A. fistulosum*, &c.

cinereous TREMEL'LA *cine'rea*. RELH. *n.* 1086.—Sitting, ash-coloured, bent back, the edge curled, between indented and lobed. BATSCH *cont.* i. 197.

Batsch 26. 137.

When young circular or oblong, and more closed; when fully grown more expanded and irregular, when past maturity irregularly cushion-like with a pit in an imperfect disk, the edge with small

small lobes; lobes short, broadish. *Edge* between the elevated lobes between depressed and indented, and therefore appearing curled. *Substance* horny or semi-transparent, ash-coloured, when moistish the whole dark, but white when it begins to dry, and when dried membranaceous dirty white. BATSCH.

Peziza cinerea. Batfch.

Inside of decayed willows and stumps of trees. A. July, Aug.

TREMEL'LA *diffor'mis*. Roundish; indented, *sea* of various forms, jelly-like.—

Very nearly allied to *T. verrucosa*, but is soft and grows on Con-
fervas. LINN. *fuec. n.* 1140.

On Conervas and Fuci growing on submarine rocks.

TREMEL'LA *granula'ta*. Jelly-like, spherical, *granulated* clustered, green. HUDS. 566.

Fl. dan. 705.—*Dill.* 10. 17.—*Gesn. ap. Cord. a Schmid. ic. lign.*
22. 195?

From a greenish mucilaginous ground, of no determinate figure, arise little heads, crowded together, green, at first sitting, but when older supported on short pedicles. These heads are globular, hollow, filled with a watery fluid. When this fluid is wasted by the heat of the sun, or lost by the bursting of the heads, the top of the globe subsides, and seems hollow, or as if cut off. Skin of the heads thin, shining, when ripe changing to grey and then to whitish. DILL. 55.

Sides of ditches and in dried up ditches between Newington and Hackney. DILL.—About Charlton, Kent. HUDS.—Near the edges of ponds and ditches on the road to Histon, Cambridgehire. RELH. *suppl.* 1. 26. n. 1033.

A. Oct.—May.

TREMEL'LA *hemisphæ'rica*. Hemispherical; *hemispheric*; scattered.—

Wieg. obs. 2. 3.

This usually vegetates with a very small, but hard spherical excre-
scence, and varies in size from the minutest point to that of a small vetch. It sometimes covers the rocks to a considerable extent. At very low water in *spring tides*, and upon those submarine rocks which at that period only, are exposed to air, I have very frequently found this plant (as I conceive it to be) in an inflated state, quite globular and more than an inch in diameter. It is then of a most beautiful transparent green colour: it afterwards collapses and dries into a hard sinuated crust, not hemispherical, but of the same colour and texture as the Tremella, and indeed the edges of it are oftentimes rounded in a manner exactly similar to the plant described. These
are

are found in small masses of the Tremella, growing promiscuously therewith. Major VELLÉY.—Plentiful. Consists of granules fixed to the stones without any order; globular, but flattened on the under side, so that they may be considered as hemispherical; from $\frac{1}{2}$ to $1\frac{1}{2}$ line in diameter; slippery, gelatinous but tough, so as not to be easily broken by pressing between the fingers. WIEG. obs. p. 39.

On Confervas and Fuci growing upon submarine rocks.

P. Jan.—Dec.

mesenteric TREMEL'LA *mesenterica*. Sitting, membranaceous-jelly-like, rolled up, full of hollows, gold coloured. RETZ. *scand. n.* 1419.—Twisted into manifold plaits. JACQ. in *synt. veg.* 965.

Bull. 406, and 499. 6.—Sterb. 26, the four figures in the right hand lower corner.—Vaill. 14. 4.—Schæff. 168. 1. 2. 3.—Jacq. *Misc.* 1. 13.

On the dead branches of trees. Gelatinous, tremulous, pellucid, smeared with a viscid moisture; white when young, changing to yellow. Horny when dry; growing in irregular patches. JACQ.—Golden yellow, changing to tawny when old; variously plaited and wreathed. SCHÆFFER. iv. p. 108.

T. juniperina. Hudf. 562, according to Mr. Dickson, p. 14.—not the *T. junip.* of Linn. Mr. WOODWARD.

On the Common Juniper, *Ulex Europæus* and *Spartium scoparium*.

A. Sept.—May. HUDS.

On rotten wood.

Autumn. DICKS.

common TREMEL'LA *Nostoc*. Plaited and waved.—

Bull. 174; and 184, (Mr. Woodward.)—Dill. 10. 14.—Mich. 67. 1.—Fl. dan. 885. 1.—Garf. 393. C.

Greenish or yellowish. Sub-gelatinous, consisting of several leaves variously lobed and waved, slightly adhering to the ground by a central root; the substance very thin. It varies in colour, but is usually some shade of olive. Mr. WOODWARD.—Thin, skinny, dark brown and brittle when dry. DILL.—Micheli describes the seeds as lying in the form of little strings of beads coiled up within the folds of the plant, and only to be discovered in the microscope.—It is supposed by the country people to be the remains of a meteor or falling star. It has lately been asserted that this is of animal origin, but without sufficient reason. After very severe frost I have frequently found a gelatinous substance, which from a careless observation might pass for a Tremella, but is the remains of frozen frogs. This substance does not shrivel up in dry weather as the Tremella does, nor is it plaited and waved; and generally some of the

the bones of the frogs may be found in it. After the severe winter of 1789, found great quantities of these on the edges, and in the water of ponds.

Star-flough.—Meadows and pastures after rain, and gravel walks. [Frequently on gravel. Mr. WOODWARD.] A. Jan.—Dec.

TREMEL'LA *Sabi'næ*. Tooth-shaped, tawny, like *savine* velvet. DICKS. 14.

Mich. 88. 5, *cop. in Gled.* 1. *Clavaria* f. 6.

Growing in clusters. Substance when fresh, jelly-like, strap-shaped, lopped, more than an inch long. DICKS.—An inch high, orange-coloured, gelatinous, pulpy, in clusters, simple, awl-shaped, but compressed, rather pyramidal, or with 2 horns; sometimes with blunt teeth at the sides. When dried leathery but brittle, opaque, darker coloured, recovering its former appearance when soaked in water. *Seeds* an orange-coloured dust which it throws out as it dries. JACQ. coll. ii. 174.

T. juniperina according to Web. 277, but it does not accord with the description in the Fl. lapp. DICKS.

On living branches of *Savine*.

April.

TREMEL'LA *utricula'ta*. Sitting, tubercled, jelly- bladder like. Tubercles hollow. HUDS. 564.

Dill. 10. 16.—*Mich.* 67. 2.

Spreading widely over rocks and stones under water, green, stiffish, brittle, $\frac{1}{2}$ to 2 inches thick, rather shining, sometimes smooth. *Tubercles* hollow within, from the size of a pea to that of a hazle nut. HUDS. n. 6.—Dull green, variously folded in the central part, dilating when immersed in water into various hollow bags. DILL. 54.

On stones and rivulets about Pentir and Llanberris. DILL.—Mountainous rivulets in Westmoreland and Cumberland. Near Tideswick, Derbyshire.

P. Jan.—Dec.

TREMEL'LA *verruco'sa*. Tubercled, solid; warty wrinkled.—

(*Dill.* 10. 16, and *Mich.* 67. 2, are *T. utriculata*.)

Very tender, bright green. HUDS.—Jelly-like, dull green, forming a membrane composed of 2 lamina, variously contorted. Tubercles minute roundish grains, united together. GMELIN. fuc. 227.

On stones in clear brooks and springs.

P. Jan.—Dec.

TREMEL'LA *viola'cea*. Sitting, jelly-like, violet wrinkled, violet-coloured, smooth underneath. RAY in *syn.* 22. n. 4.

Mich.

CRYPTOGAMIA.

Mich. 66. 4. *Dickf.*

Very much resembling the tartar of red wine. *RELH. n.* 899.—
Between leathery and gelatinous, variously wrinkled and contorted,
flat and smooth underneath. Colour dull violet. *RAY. syn.* 22.—
Stemless. Jelly-like but somewhat leathery, wrinkled, facing up-
wards, grey, woolly or spongy above, smooth and violet-coloured
underneath. *Helvella mesenterica. DICKS. p.* 20.

Seems rather to belong to the *Helvella's*. *RELH. suppl. i.* 39.

Decayed branches of trees,

A. Jan.—Dec.

1322. U L ' V A. Laver.

Ess. CHAR. Frustrifications in a semi-transparent mem-
brane,—with no appearance of a leaf. *LINN.*

Turkey-fea-
ther

U L ' V A *pavo'nia*. Flat; kidney-shaped; sitting;
scored cross-wise.—

H. ox. xv. 8. row 1. 7.—*Ellis. cor.* 33. c.

Edges of the leaf and of the bands fringed with very fine hairs.
Huds. n. 1.—Seldom 4 inches high; whitish dull green. Expand-
ing upwards like a fan. Kidney-shaped. Surface barred with cross
lines filled with corpuscles resembling seeds. *GMELIN. fuc.* 170.

Rocks and stones in the sea,

P. Jan.—Dec.

oyster

U L ' V A *Laëtuc'a*. Hand-shaped; proliferous; mem-
branaceous; segments narrower towards the base.—

Dill. 8. 1, representing it as it appears when viewed at some distance in
the water.—*Lob. obs.* 647. 1, repr. in *ic.* ii. 247. 1, *Dod.* 477. 2,
Ger. em. 1566. 2; cop. in *Park.* 1293. 9; and imit. in *J. B.* iii.
801.—*Matth.* 1136, imit. with additions in *Matth. a. C. B.* 795.
—*Ger.* 1377.

Leaves incorporated, pale, hand-shaped, each segment growing
out again into hand-shaped leaves; segments waved, inversely egg-
shaped, blunt, transparent. *LINN.*—A foot high or more; thin,
pellucid, fine green, upright or reclining. *DILL.* 42.

Oyster-green. *Green Sloke.* Scotland.

On rocks, stones, and shells in the sea, and salt water ditches.

This is esteemed by the inhabitants of the sea-coast as a whole-
some and pleasant food, being gently opening and antiscorbutic.
It is frequently sent to London in earthen pots, and boiled up with
vinegar and salt is eaten as a pickle.

♀ *Huds.* *LIGHTF.* 971. Tender, slippery.

Dill,

Dill. 8. 2.

Fresh-water Laver.

Ditches and pools in the meadows about Newington, near London. DILL.

γ HUDS.

Ulva crispa. LIGHTF. which see.UL'VA *umbilicalis*. Flat; circular; fitting; target-*navel* shaped; leathery.—Dill. 8. 3.—*Lob. ic. ii. 247. 2, cop. in J. B. iii. 813. 4.*Somewhat hollow. Border indented; fixed only by a point in the middle, to the substance on which it grows; of a dark footy colour, shining. Uniform, membranaceous, pellucid, very tender, often gelatinous. *Leaf* flat, varying much in breadth. GMELIN. 214.—Circular, concave, fixed by the center as by a root, and firmly adhering to the rocks. From 4 to 12 inches broad; smooth, shining, often torn or perforated by the agitation of the sea; dull brown, changing to dull purple when dry. DILL. 45.

On low sea beaches, as near Sheerness. DILL.—On rocks and stones at low water. HUDS. 567. P. Jan.—Dec.

UL'VA *crispa*. Tender, curled, growing on the *crisped* ground. LIGHTF. 972.Dill. 10. 12.—(*Fl. dan. 885. 2, is T. intestinalis.*)

Expanded on, and slightly adhering to the earth, without any apparent roots, very thin, of a fine green. DILL. 52.

Ulva Laetuca γ. Hudf. 567. Relh. n. 1034.

On walls and on the ground at the foot of walls, hedges, and houses, in moist shady sandy places. Jan.—Feb.

UL'VA *lacinia'ta*. Leaves flat, purple; the extre-*lacinated* mities widening, jagged, and waved. LIGHTF. 974.*Lightf. 33, at p. 974.**Seeds* minute, numerous, like grains of a red powder, lodged in various parts of the substance. Greatly resembles the *Fucus lacinia'tus*, but the fructifications are different. LIGHTF.—Is it not a variety of *U. umbilicalis*? HUDS. 652.

Sea shore, on the coast of Jura.

Aug.

UL'VA *coccin'ea*. Flat, nearly circular, membra-*scarlet* ceous, indented, scarlet. HUDS. 567.*Leaf* $\frac{1}{2}$ to 1 foot long, somewhat waved, semi-transparent, shining.*Seeds* numerous, small, roundish, blackish purple. HUDS. n. 4.

Rocks and stones in the sea, near Plymouth and Falmouth.

P. Jan.—Dec.

UL'VA

Riverweed UL'VA *confervoides*. Thread-shaped, jointed; joints alternately compressed. LINN.—Very much branched; joints oval. HUDS.

Dill. 6. 39.

From 2 to 4 inches long, irregularly divided and sub-divided into branches, yellowish green. Branches knotted or jointed, hollow. DILL. 34.

Conferva tubulosa. Hudf. 600.

Stones, rocks, and Fuci.

A. April—Oct.

brown UL'VA *latissima*. Oblong; flat, waved; membranaceous; green. LINN.—Somewhat sword-shaped, brown. HUDS. 567.

A very long and very broad membrane. LINN. *fuco*. n. 1156. Mr. WOODWARD.—*Leaf* 1 to 3 feet long, 2 to 8 inches wide, thin, shining. HUDS. 567.—Broad, thin, green, plaited and waved at the edge; 2 spans long and one broad. SCOP. n. 1432.—Of no regular shape, extremely thin. Mr. WOODWARD.

U. fusca. Hudf. 567.—*Fucus saccharinus* β . Lightf.

Rocks and stones in the sea near Sheerness, in the Isle of Shepey. [Yarmouth Haven. Mr. WOODWARD.]

A. May—Oct.

leek UL'VA *lanceolata*. Egg-spear-shaped, flat.—

Dill. 9. 5.

Leaves a palm in length or more; very thin, smooth, pale green. DILL. 46.

On rocks near Llanfaethly in the Isle of Man. DILL.

P. Jan.—Dec.

horned UL'VA *cornuta*. Stiffish, horned, growing on the ground. LIGHTF. 972.

Dill. 10. 13.

Three or 4 inches long, irregularly divided into horn-shaped branches; surface various, furrowed and scored, otherwise smooth, flattened, pale green. DILL. 52.—Is it not a variety of *Jungermannia pinguis*? HUDS. 652.

On the ground in Enfield Chace, near Southgate. DILL.—On the ground in a moist sandy soil near Leith. Mr. YALDEN in *Fl. Scot.*

March, April.

ribbon UL'VA *Lin'za*. Leaf oblong; blistered.—

Fl. dan. 889.—*Dill.* 9. 6.

Bright green, thin, the folded edge even, the open edges indented and curled. DILL. in *R. syn.* 62, n. 3 and *musc.* 46.—Five or 6 inches long, about an inch wide, doubled lengthways. LIGHTF. 973.

On

On large stones and rocks in the sea; and in ditches near Sheernefs.

P. Jan.—Dec.

U L ' V A *monta'na*. Flat, scarlet, growing on the mountain ground, blood-coloured. LIGHTF. 973.

Leaves without visible roots, many together supporting each other, about 2 or 3 inches high and as much in breadth, variously sinuated, leathery, but friable. LIGHTF. 973.

Among grass and moss on the sides of mountains.

Aug.

U L ' V A *dichot'oma*. Flat, forked, green. HUDS. *ed. i.* *dichotomous* 476. *ed. ii.* 568. LIGHTF. 975.

Lightf. 34, at p. 975.

Leaf about 3 inches long, flat, greatly dilating upwards and forking into branches. Branches an eighth or a tenth of an inch broad; cloven at the ends. Colour pale green, substance membranaceous, very thin, pellucid, in the microscope reticulated. Seeds small, brown, scattered through the substance of the leaf. LIGHTF.

Rocks and stones on the sea shore at low water. Isle of Walney, Devonshire. Cornwall and Suffex. Basins of water among the sea rocks, about Leith and New Haven.

P. Jan.—Dec.

U L ' V A *intestina'lis*. Tubular; simple, LINN.—gut membranaceous, green. HUDS. 568.

Dill. 9. 7.—Buxb. v. 23. 1.

Varying greatly in size; simple or branched, from the thickness of a quill to that of a walking-stick, and an ell or two in length; hollow; very unequal on the surface, yellowish when young, changing to a fine green. DILL. 47.

Mostly in ditches near the sea, but sometimes in fresh water ditches.

A. March—Oct.

U L ' V A *compressa*. Tubular; branched; compressed. —

Dill. 9. 8; and 10. 8.—Pet. 9. 6, allowed by Dill. to resemble it, but he asserts it to be a different plant, though it certainly corresponds with the plant when not branched, as Dillenius himself allows it sometimes to be.

Pretty solid, unequal, winding, with cells of unequal dimensions communicating one with another. Branches scattered, but little branched. LINN. *succ. n.* 1155.—Tubular, sometimes branched, compressed, straight or bent, smooth, even. DILL. 49.

Rocks, stones in the sea, and in salt water ditches.

A. Jan.—Dec.

U L ' V A

purplish **UL'VA** *purpurascens*. Tubular, very much branched; nearly round. Branches opposite, pointed. HUDS. 569.

Stem 6 inches high, of the thickness of packthread, purplish, semi-transparent. Branches opposite, mostly pointing two ways, round, pointed. HUDS. n. 11.

Near Christ Church, Hampshire. HUDS.

A. March—Oct.

pipe **UL'VA** *fistulosa*. Jelly-like, tubular, uniform, simple. HUDS. 559.

Root creeping. Leaves numerous, pipe-like, closed at the end, brownish, 3 inches long, of the thickness of shop packthread. Seeds numerous, small, round, brown. HUDS. n. 13.

Stones in the sea, and on Fucuses.

A. May—Sept.

diaphanous **UL'VA** *diaphana*. Jelly-like, pale, diaphanous, nearly round, branched. Branches very short, somewhat pointed. HUDS. 570.

Ger. em. 1570. 10, cop. in Park. 1304. 4.—Ellis corr. 32. f. d.

Leaf solid. Branches round. Seeds very numerous, minute, brown, 4 to 16 inches long, from the thickness of a finger to that of the wrist. HUDS. n. 14.—Varies much in its figure; cylindrical or compressed, even or knotted, much or little branched, thicker than a thumb or thinner than a little finger, from 4 to 12 inches high. Even, pellucid, pale yellowish white. RAY Syn. 49. n. 42.

F. gelatinosus. Hudf. ed. i. 570.

Sea-shore, near Sheerness.

P. Jan.—Dec.

yellowish **UL'VA** *flavescens*. Jelly-like, nearly round, somewhat branched, yellowish. Branches very short, blunt. HUDS. 570.

Leaf solid, round and sometimes flattened and widening, the edge sometimes indented, toothed, of a pale yellowish hue. Seeds numerous, small, round, brown, 3 to 4 inches long, about the thickness of the little finger. Is it not a variety of *U. diaphana*? HUDS. n. 15.

Rocks and stones in the sea. Isles of Anglesea and Walney.

P. Jan.—Dec.

filiform **UL'VA** *filiformis*. Jelly-like, thread-shaped, very much branched, purplish. Branches scattered, distant, very long. HUDS. 570.

Leaf 6 inches long, nearly of the thickness of shop packthread. Branches blunt. HUDS. n. 16.

Rocks and stones in the sea. Near Christ-church, Hampshire.

A. April—Sept.

UL'VA

U L' V A *capilla'ris*. Jelly-like, thread-shaped, very *capillary* much branched, pale. Branches alternate, hair-like, upright. HUDS. 571.

Leaf 4 inches long, solid. HUDS. n. 17.

Rocks and stones in the sea, near Christ-church, and elsewhere in Hampshire. Near Margate. A. May—Oct.

U L' V A *ru'bens*. Jelly-like, thread-shaped, very *reddish* much branched, reddish. Branches scattered, horizontal, blunt. HUDS. 571.

Leaf 4 inches long, nearly the thickness of shop packthread. Branches short. HUDS. n. 18.

Rocks and stones in Portland island, and near Pool, Dorsetshire. A. May—Oct.

U L' V A *ru'bra*. Jelly-like, thread-shaped, forked, *red* red. HUDS. 571.

Leaf $1\frac{1}{2}$ inch long, blunt. Branches long. HUDS. n. 19.

Stones in the sea, near Christ-church, Hampshire.

A. May—Sept.

U L' V A *plumo'sa*. Jelly-like, thread-shaped, branched. *feathered* Branches strap-spear-shaped, winged, shining. HUDS. 571.

Stem a finger's length, flattened, of a brownish reddish hue. Branches flattened, closely winged, reddish green, wings jelly-like, hair-like, very green. HUDS. n. 20.

Rocks and stones in the sea, near Exmouth, Devonshire.

P. April—Oct.

U L' V A *incrassa'ta*. Jelly-like, flat, indented-toothed, *thick* green, the edge thicker. HUDS. 572.

DILL. 10. 10.—VAILL. 10. 3.

Gelatinous, slippery, green; grows in the water and on the edges of small ditches. Crowded, irregularly divided, swollen, but not round, the segments being flattish. DILL. 51.

In the ditches of a field near Chichester, Suffex, without the East gate. DILL.—Selfey island, Suffex, between Greenwich and Woolwich, near Doncaster, about Spalding and elsewhere in Lincolnshire. HUDS.—On the stalks of Horsetail in a ditch on Sheep's Green. RELH. n. 1087. A. Mar.—Oct.

U L' V A *prunifor'mis*. Nearly globular, solitary, *plumb* succulent within.—

Wieg. obs. 2. 4.—(*Gunn.* ii. 2. 6 and 7; 9. 4 and 5, *Wiggers at n.* 1031, assures us are *F. loreus* in its infant state. The root of the fig. of *F. loreus* in *Dod.* 479, is exactly similar to *Gunn.* 9. 4 and 5.)

Of the size and shape of a plumb, sometimes rather flattened on one or other of the sides; the rind of the thickness of the rind of a plumb; within full of a viscid pulp containing either in the middle or a little on one side some grains just visible. Mostly loose, but sometimes adhering to jointed *Conferva's*. *LINN. succ. n.* 1159.—Of the size of a floe or bullace. *HUDS.* 572.

Ditches and pools, and the alpine lakes of Westmorl. A. May—Oct.

pea U L' V A *pi'sifor'mis*. Globular, solitary, spongy, brownish. *HUDS.* 572.

Leaf from the size of rape seed to that of a pea, spherical, with an interwoven net work, pulpy, brownish green. *HUDS. n.* 23.

Ditches between Greenwich and Woolwich. A. March—Aug.

1321. F U' C U S.

Barren Flowers?

LITTLE BLADDERS smooth, hollow; interspersed within with soft hairs interwoven together.

Fertile Flowers?

LITTLE BLADDERS smooth; full of a jelly-like pulp; sprinkled with grains buried in the substance of the bladders; somewhat prominent at the points.

SEEDS solitary.

ESS. CHAR. *Barren Flowers.* Little bladders with soft hairs interwoven together.

Fertile Flowers. Little bladders sprinkled with grains buried in the leaf, the points somewhat prominent. Seeds solitary.

OBS. See plate 1. fig. G. All the species may be used to manure land, or burnt to make kelp, which is an impure fossil alkali.

* *Leaves distinct.*

gulf F U' C U S *na'tans*. Stem thread-shaped, very much branched. Leaves spear-shaped, serrated. Fructifications globular, on fruit-stalks.—

Pet. fil. 19, 11, 10, 12.—*Barr.* 1122, serratures not sufficiently expressed.—*Lob. obs.* 653. 3, repr. in *ic.* ii. 256. 2, *Ger. em.*

1615. 2, and a portion of a branch cop. in Park. 1281, right hand figure.

Fruifications sometimes ending in an awn; in some plants very short pods composed of minute warts are found in the bosom of the leaves. LINN.—*Fruifications* like juniper berries, but always hollow. *Leaves* sitting, oblong-spear-shaped, varying in breadth, serratures alternate. GMEL. fuc. 93.

Sea shores. Isle of Shepey: Northumberland: and thrown on the shore near Falmouth. P. Jan.—Dec.

FU'CUS *ova'lis*. GMEL. fuc. 162.—Compressed, *ovate* branched. Leaves oval, very entire. HUDS. 573.—Stem thread-shaped, branched. Branches forked. Leaves oblong, round, on leaf-stalks. LIGHTF. 958.

Gmel. fuc. 18. 4.

Soft, but cartilaginous, pellucid, white, about 2 inches high. *Stems* numerous, full 2 inches high, cylindrical, branched on every side. *Branches* like the stems. *Leaves* somewhat winged, leaflets alternate. *Fruifications* terminating, swelling with seed-bearing granules. GMELIN fuc. 162.

F. ovatus. HUDS. ed. i. 468.—*F. vermicularis*. LIGHTF. 958.

Sea-rocks and stones near Scarborough, Yorkshire, and Christ Church, Hampshire. HUDS.—In basins of water on the sea-rocks on the little isles of Jura. LIGHTF. A. May—Oct.

FU'CUS *sanguin'eus*. Leaves membranaceous; egg-*dock-leaved* oblong; very entire; on leaf-stalks. Stem round, branched. LINN.—Leaves waved. HUDS. 573.

Gmel. fuc. 24. 2.—Fl. dan. 349.—Gif. i. 24.—H. ox. xv. 8. row 1. 6.

Resembling the leaves of the *Rumex sanguineus*, in size as well as form. R. syn. 49.—Stem very short, ending in oblong-spear-shaped leaves, very entire, waved at the edge, rounded at the end, furnished with a mid-rib which sends off lateral alternate veins; from 3 inches to a foot in length and from $\frac{1}{4}$ to 2 inches in breadth; pellucid, pale red purple. GMELIN fuc. 165.—*Fruifications* roundish, on fruit-stalks, blackish red, on the sides of the branches and ribs, of the size of rape seed. HUDS. n. 3.

Rocks and stones in the sea. Falmouth. P. Jan.—Dec.

FU'CUS *ru'bens*. Leaves membranaceous, oblong, *red* waved, indented. Stalk round, branched. LINN.—Leaves indented and toothed. HUDS. 573.

Fl. dan. 652.—*Gmel. fuc.* 24. 1, similar to the lowermost figure in *Fl. dan.*

Substance membranaceous; half a foot over; purple, dull green with age, sometimes pale red. *Stem* very short, branched, soon changing into leaf-stalks. *Leaf* winged, leaflets exactly egg-shaped, opposite, an odd one at the end; waved at the edge; teeth few, pointed, distant. *Gmelin fuc.* 184.

Sea rocks and stones.

P. Jan.—Dec.

fringed **FU'CUS** *fimbriatus*. Stem compressed, nearly simple. Leaves pointing from two opposite lines, strap-shaped, fringed. Fructifications along the edge, oblong. *Huds.* 574.

Gmel. fuc. 20. 2.

A foot high, or more; membranaceous, diaphanous, fine red, paler by places. *Leaf* winged. *Leaflets* on very short leaf-stalks, lower ones the shortest, upper ones as much as 4 inches long; oblong-spear-shaped, sometimes proliferous, alternate or opposite, edges fringed with wedge-shaped substances. *Gmelin fuc.* 173. Who observes that it is a native of the Indian ocean, so that some doubt remains from that and other circumstances whether the plant of Mr. Hudson be really this of Gmelin.

On the sea shore in Portland Island, but rare.

P. Jan.—Dec.

* * *Leaf united, branching.*

podded **FU'CUS** *siliquosus*. Leaf compressed; branched. Leaflets pointing two ways; alternate; very entire. Fructifications on fruit-stalks; oblong; sharp-pointed.—

Gmel. fuc. 2. B.—*Fl. dan.* 106.—*Giseke* 75.—*Dod.* 480. 2, repr. in *Ger. em.* 1569. 7, and a branch cop. in *Park.* 1293. 6, c. of the three figures that on the right hand.

Thread-shaped, compressed, zigzag, each side toothed, with rudiments of leaf-stalks or fructifications. *Fructifications* spindle-shaped, beaked at the end, alternate, on fruit-stalks. *Leaves* spear-shaped, smaller than the pods. *Linna.*—*Pods* very numerous, oblong-egg-shaped, scored across, filled with slime containing numerous granules. *Substance* leathery, 4 feet long, dark olive, black when dried. *Gmelin fuc.* 81.

Sea rocks and stones.

P. Jan.—Dec.

Cromer **FU'CUS** *subfuscus*. Very much branched. Branches thread-shaped, scattered. Leaves awl-shaped, nearly alternate. Fructifications in panicles. Capsules with 8 seeds. *Mr. Woodward.*

Transf.

Transf. Linn. Soc. t. 12. at p. 134.

About 6 inches high, the size of small twine. Branches numerous, irregular, crowded upwards, nearly as large as the stem. Capsules in the bosom of the leaves, on short fruit-stalks, about the size of a small pin's head; pale, semi-transparent. Mr. WOODWARD.

Cromer on the coast of Norfolk. Mr. WIGG.

A. Winter.

F U ' C U S *concatenatus*? Leaf thread-shaped, very chain much branched. Little branches forked. Bladders necklace-shaped, distant, in the substance of the leaf. Leaves awl-shaped.—

(*Lob. obs. 652, repr. in ic. ii. 254. 2, and cop. in Park.*

1290, is referred to by Mr. Hudson, but belong to Gmelin

t. 2. A. 2, which is *F. feniculaceus*.)—(*Fl. dan. 591, is*

F. granulatus.)

Thread-shaped; branches very numerous, opposite or alternate, often ending in forks. Bladders egg-shaped, in the substance of the stem and the branches, distant, an awl-shaped leaf at the side of each.

LINN.—Six or 8 inches long, cartilaginous, tawny olive. Bladders oblong, placed at a little distance, 3 or 4 one above another, each with one or two little thorns. When in fruit, the ends of the branches also swell, and are covered with numerous wart-like substances, each with a puncture in the center and within full of seeds.

LIGHTF. 924.

Sea rocks and stones, Suffex and Cornwall. HUDS.—About Leith and New Haven. Mr. YALDEN in *fl. scot.* 923. P. Jan.—Dec.

F U ' C U S *fetaceus*. Leaf thread-shaped, very much *setaceous* branched. Branches alternate, two-rowed. Bladders elliptical, in the substance of the leaf. Leaves bristle-shaped. HUDS. 575.

Gmel. fuc. 18. 2?

Branches nearly upright, zigzag. Leaflets alternate, upright, tiled towards the ends of the branches. Vesicles growing in the substance of the stem and branches, about the size of a vetch. HUDS. n. 8. —Gmelin describes his plant thus. Substance cartilaginous; 6 inches high, brownish green. Stem flat, twisted at bottom, $\frac{1}{2}$ of an inch over, short. Branches numerous, alternate, divided and subdivided in various directions and ultimately ending in a fork. Amongst the smaller branches and on the stem, are numerous teeth, simple or forked, various in their size, so as to give a fringed appearance to the plant. The swelling of these teeth leads one to think that they perform the office of fructification. GMELIN *fuc. 160.*—

From this description I think it is evident that Mr. Hudson's must be a different plant.

Rocks and stones in the sea, but rather scarce. P. Jan.—Dec.

fennel-leaved FU'CUS *fenicula'ceus*. Leaf thread-shaped; very much branched: bladders egg-shaped; terminated with leaflets divided into many blunt segments bearing fruit at the ends?—

Gmel. fuc. 2. A. 2.—Fl. dan. 709.—Lob. obs. 652, repr. in ic. ii. 254. 2, repr. in Ger. em. 1573. 7, and cop. in Park. 1290. 6, and J. B. iii. 798. 1, and Ger. 1380. 6.—Gesn. ap. Cord. a Schmid. ic. lign. 1. 2.

About the length of *Lichen Usnea*. Little branches very numerous; hair-like; ending in a bladder, often proliferous; the last of which terminates in several little leaves with tubercles at the ends. LINN.—Rather woody, 4 to 6 inches high; growing in a compact bundle; livid, yellowish; black when dried. Branches numerous, divided and sub-divided, their extremities forked. Lower branches always rounded, upper ones sometimes flattened, and ending in long pods with a fork at the extremity. GMELIN fuc. 86.

Rocks and stones in the sea on the coast of Devonshire.

P. Jan.—Dec.

jointed FU'CUS *abrotanifolius*. Leaf thread-shaped; compressed; doubly winged; the ends bladder-like; dilated; terminated with fructifications tubercled on one side.—

Gmel. 17. 1.

Varying in colour, red or yellowish, or greenish. Stem cylindrical; often 2 feet high, gelatinous, doubly winged, leaflets cut into many winged clefts, the segments thickish, strap-shaped, blunt, often with fructifications at the end. GMELIN fuc. 157.—Such is the description given by Gmelin of his plant, which is a native of the Cape of Good Hope. Botanists who visit the Southern coasts of this island will do well to determine whether Mr. Hudson's plant be not a different species. Linnæus says that his *F. abrotanifolius* is a native of the British seas. Sp. pl. 1629.

Sea rocks and stones, Sussex and Hampshire.

P. Jan.—Dec.

fibrous FU'CUS *fibrosus*. Leaf thread-shaped, very much branched. Bladders roundish, growing in the substance of the leaf. Leaflets thread-shaped and strap-shaped. HUDS. 575.

H. ox. xv. 8. row the last, 17.

Four to 6 inches high. Stems thick, round. Branches numerous, in no regular order, divided and sub-divided into capillary fibres: extremities

extremities cylindrical or compressed, frequently bearing vesicles.

RAY syn. 49.

Sea shore. Yorkshire, Lancashire, and Hampshire. P. Jan.—Dec.

FU'CUS *tamariscifolius*. Branches alternate. Bladders roundish, growing in the leaf. Leaves in pairs, with tubercles at the base. HUDS. 576.

Gmel. fuc. 11. 2.—B. hist. iii. 799.

Five or 6 inches high, or more, rising from a thick leathery base, roundish in form, apparently destitute of fibres and flat on the under surface, which by means of a gluten peculiar to sea plants attaches itself strongly to the submarine rocks, and is rarely to be separated from them, as the plant generally breaks asunder above the root, when pulled. This Root, or base, covers an area of an inch or more in diameter. Stem at bottom resembles in miniature the trunk of an oak channelled through age, and at an inch or less from the base is generally surrounded with scaly tubercles, from whence the primary branches take their origin. Those on the lower stem are frequently strap-shaped and transparent, 4 times the length of the upper leaves. At the base of many of the short awl-shaped leaves, on their outer side, is a cavity which in its recent state resembles the faucers of those Lichens that have contracted disks, and thin, smooth, prominent borders. When under water in the cavities of the rocks, this plant reflects from its extreme branches lively cærulean tints, which frequently assist in the discovery of it. When fresh from the sea it is of a brownish olive colour, but most of the upper branches are tinged with a lighter muddy green, which in its dried state turns to a dust colour, when the remainder of the plant approaches to a black. Major VELLEV.

Fucus erica marina. Gmelin, p. 128; not Fucus abies marina. Gmelin, p. 83, as in Fl. angl.

Sea rocks and stones near Marketjeu, and elsewhere in Cornwall, Devonshire, and Yorkshire. P. Jan.—Dec.

FU'CUS *selaginoides*. Leaf thread-shaped, very much cup-leafed branched. Branches forked. Leaves awl-shaped, alternate, with bladders at the base.—

Gmel. fuc. 2. A. 1.—Park. 1290, too thick and tree-like. (Not Bauh. hist. iii. 798.)

Stem thread-shaped, zigzag, very much branched. Branches tiled. Leaves awl-shaped, very short, egg-shaped, and hollow at the base. LINN.—The branches produce little foot-stalks, each of which supports an oblong vessel; out of this vessel another foot-stalk rises, bearing another vessel, so that the branches are composed of a series of these vessels one springing out of another. Gmelin fuc. 84.—

Mr.

Mr. Hudson quotes this as a synonym to his *F. tamariscifolius*, but they are evidently distinct plants, the latter not having the bladder-like hollows at the base of the leaves which are so characteristic in this.

In the Norwegian Seas. LINN.—Am not certain that it has yet been found on the British coast.

articulated F U ' C U S *articula'tus*. Leaf jointed, very much branched. Joints egg-cylindrical, tubular. Branches opposite and in whorls. LIGHTF. 959.—Tubular, jointed, very much branched. Branches opposite, forked. HUDS. *ed.* i. 476. *ed.* ii. 569.

α HUDS.—*H. ox.* xv. 8. row 2. 14.—*Buxb.* v. 22?

One to 3 inches high, pale red purple. *Seeds* in the terminating joints and in others growing in whorls at the ends of the branches. LIGHTFOOT.

Ulva articulata. HUDS.

Rocks and stones in the sea, about low water mark, Cornwall, Devonshire, Dorsetshire, Suffex. HUDS.—Jura Cransay Skye, &c. LIGHTF.

A. March—Nov. HUDS.—August. LIGHTF.

β *repens*. LIGHTF.—Leaves forming a tuft, creeping, branched, jointed. Joints oblong, flat. LIGHTF. 961.

DILL. 10. 9.—DOD. 476. 2, repr. in *Ger. em.* 1574. 10, growing on a large *Fucus*

Stems narrow, matted together, set with narrow straps. *Shoots* numerous, crowded, $\frac{1}{2}$ an inch high, broadest upwards, variously and irregularly divided into segments, and sometimes appearing jointed, flat, (not hollow,) tender, dull purple below, dirty green above. DILL. 51.—*Seeds* in the substance of some of the extreme joints, like grains of fine purple powder. LIGHTF.

Ulva articulata β HUDS.

Sea rocks washed by the waves, in Prestholm Island, DILL.—and near Musselburgh. LIGHTF.

August.

whorled F U ' C U S *verticilla'tus*. *Stems* obscurely jointed. Branches in whorls, awl-shaped, bristle-strap-shaped. LIGHTF. 962.

Lightf. 31. at p. 962.

Pale or whitish green, membranaceous. *Stems* about 5 inches high, about the size of a small goose quill, so obscurely jointed as to be almost cylindrical. Branches 3 to 5 in a whorl, an inch or more long, gradually shorter towards the end of the stem, beset with bristle-

bristle-shaped leaves alternate or without order. *Fruifications* red, visible with a microscope at the ends of the branches. LIGHTF. n. 41.
On the rocks of the little isles of Jura. LIGHTF. July.

*** Leaf flat, Stem forming a mid-rib through its whole length.

FU'CUS *ferra'tus*. Leaf flat, forked, with a rib, *serrated* serrated-toothed. Fruifications at the ends of the branches, tubercled. —

H. ox. xv. 9. 1. — *Bast.* ii. 11. 3.

The rib formed by a longitudinal nerve. LINN. — Two feet high or more, but it varies much in size. Substance hard, leathery. Colour green to yellowish, or olive, blackish when dried, but still in some measure pellucid. Stem flat, pervading the whole length of the leaves, which are oblong, flat, edges set with teeth of various sizes. It has no air vesicles, but little pencils are often found on both surfaces, and *Tubercles* bearing seeds, filled with woolly matter, in the substance of the leaf, either scattered, or more collected at the extremities. GMELIN fuc. 57.

Sea rocks and stones.

P. Jan. — Dec.

β HUDS. 576. — A foot long, at least an inch broad. Edge unequal, less remarkably serrated. DOODY in R. syn. 42.

FU'CUS *vesiculo'sus*. Leaf flat, forked, with a rib, *oak-leaved* very entire, with bladders at the divisions of the leaf, in pairs; those at the ends of the branches tubercled. —

Bast. ii. 11. 2. — *Gesfn. ap. Cord. a Schmid. ic. lign.* 1. 6. — *Clus.* i. 21, repr. in *Lob. ic.* ii. 225. 1, *Ger. em.* 1567. 4; and cop. in *Park.* 1293. 11; and also in *Ger.* 1378. 3.

The bladders at the divisions of the leaf in pairs, the others solitary. — Turns red in decay. The bladders in the substance of the leaf contain the fructifications. LINN. *fuec. n.* 1145. — Both this and the *F. ferratus* when fully grown, are forced continually by the flux of the tides against the rocks, and by the constant collision lose the membranaceous part of their lower leaves, while the main stems, which are exceedingly tough, acquire a smooth roundish form, and the forked ribs which pervade the upper leaves wear away to sharp thorny points. In this state both these plants have a shrub-like appearance, whilst the short leaves and inflated vessels at the summit of the branches are frequently entire. If the *F. vesiculosus* receives an injury or fracture, in any part of the leaf, provided it be in a healthy vegetating state, it constantly throws out a abundance of young leaves from the injured part. If even a small aperture be made in the middle of it, a new leaf on either side will be found to shoot out. I have rarely discovered this proliferous tendency in the *F. ferratus*. Major VELLEY.

Sea

Sea rocks and stones.

P. Jan.—Dec.

β Leaf flat; forked; very entire. Branches straddling; with blades at the division of the leaf in pairs. LINN.

H. ox. xv. 8. row the last, 10.

γ HUDS. 577.—*H. ox.* xv. 8. row the last, 5. and i. 1. 4. A. B.

F. divaricatus. Hudf. ed. i. 466.

Shore about Leith and New Haven. Mr. YALDEN in *fl. scot.* July, Aug.

spiral FU'CUS *spira'lis.* Leaf flat; forked; very entire; dotted; strap-shaped and channelled towards the base. Fruifications in pairs; tubercled.—

Fl. dan. 286.—*Bast.* ii. 11. 1.—*Dod.* 479. 1, repr. in *Ger. em.*

1567. 4, on the right hand side.—*Gesn. ap. Cord. Schmid. ic. lign.*

1. 5.—(*H. ox.* xv. 8. row the last, 10, is *F. vesiculosus.* β.)

Twisted spirally whilst growing; membranaceous, flat, narrower below, channelled. Fruifications terminating, oblong, thickish, in pairs, on fruit-stalks. LINN.—A foot or more in length. RAY *fyn.* 41.

Stones and rocks in the sea, Kent, Suffex, and Essex. P. Jan.—Dec.

twisted FU'CUS *volu'bilis.* Leaf flat, spiral, perforated, waved at the edge and toothed.—

Barr. 1303.—*Bocc. ic.* 38. 2.

Thin, membranaceous, twisted like a screw, 2 or 3 inches long, the ends finely cut or fringed, simple or branched, blackish brown. BOCCONE. 69.

Rocks and stones in the Firth of Chester. *R. fyn.* P. Jan.—Dec.

wiry-stalked FU'CUS *dist'ichus.* Leaf flat, forked, very entire. Fruifications tubercled, sharp-pointed.—

Gmel. fuc. 1. A. 1.—*Fl. dan.* 351, is cited by Linn. but Lightf. seems to have good reason for doubting, as the mid-rib is not expressed.

It has the appearance of being convex on the upper side as in *F. canaliculatus.*—(*Dod.* 479. 2, is *F. loreus.*)

Between gristly and leathery, 6 inches high, olive green, changing to black when dry. Root circular, more than $\frac{1}{2}$ inch diameter, cemented to stones. Stems thick, flat, branched. Branches uniform, forked, pervaded by a mid-rib, leaf narrow. Fruifications on the ends of the branches, containing granules. GMELIN *fuc.* 72.—Differs from the *F. canaliculatus* in the leaf not being at all channelled, and the pod-like vesicles being long and tapering to a point. KÆNIG.—With a mid-rib. The texture herbaceous. LINN.

F. linearis. Hudf. 578.

Sea rocks and stones.

P. Jan.—Dec.

FU'CUS

FU'CUS *ala'tus*. Leaves membranaceous; somewhat winged forked; ribbed; segments alternate, running down; cloven. LINN.—Leaves very entire, coloured. HUDS. *ed.* i. 473. *ed.* ii. 578.

Fl. dan. 352.—*Gmel. fuc.* 25. 1; 2, in its younger state; 3, a variety with broader leaves.

Leaves branched, purple, diaphanous, strap-shaped, ends somewhat toothed, mid-rib rather thick. LINN.—Three inches long or more, membranaceous, thin.—Stem flattened, 1 line broad, very much branched. Branches alternate, edged with the thin leafy substance. GMELIN *fuc.* 187.—When the leafy membranaceous substance which edges the rib of the branches decays or rubs off, the plant assumes a very different appearance, seeming then to be composed of thread-shaped branches.

Sea rocks and stones.

P. May—Oct.

FU'CUS *esculen'tus*. Leaf simple, undivided, sword-shaped. Stem 4-cornered, winged, running through the whole length of the leaf. LINN.—Bordered. HUDS. 578.

Fl. dan. 417.—*Lightf.* 28, at p. 938.—*Gmel.* 29. 1, wants the wings at the top of the stem.

Stem thick, broad, 4-sided, winged at the base with flat sword-shaped leaflets; leaf very large, penetrated through its whole length by the stem which is visible on both its surfaces. In these circumstances it differs from the *F. saccharinus*. LINN.—Sometimes from 5 to 10 yards long, or more, olive coloured. Stem solid, round, upright, pervading the whole length of the leaf. Leaf extremely long, rounded at the base, narrower towards the end, diaphanous, wonderfully plaited and curled. GMELIN *fuc.* 200.—In Hudson's Synonym for *Fl. dan.* read *Gmelin*.

Sea rocks and stones; common. Cumberland and Scotland.

P. Jan.—Dec.

**** Leaf flat, without a mid-rib.

FU'CUS *sacchari'nus*. Leaf mostly simple; sword-shaped; leaf-stalk cylindrical; very short. LINN.—Leaf flat, ribless, simple. HUDS. 578.

Gunn. ii. 7. 2.—*Fl. dan.* 416.—*Gmel. fuc.* 27 and 28.—*Ger. em.* 1570. 9. 1, cop. in *Park.* 1292. 5. 1.

Oval or oblong, leathery, often 4 feet long and 2 broad, waved, narrow at the base, adhering to stones as if by means of fingers. LINN. *fuca. n.* 1151.—Stem from 2 to 12 inches high. Leaf single, tapering at each end, flat, sometimes 2 yards long, wrinkled, winding,

ing, the wrinkles containing a jelly-like mucus in which the fructiferous granules are lodged. Gmelin fuc. 195.

Rocks and stones in the sea.

P. Jan.—Dec.

Washed in spring water and then hung up in a warm place, a substance like fugar exsudes from it. Some people eat it fresh out of the sea. Smaller leaves and clusters eaten by the poor as *F. palmatus*. RUTTY.

β HUDS.—Leaves very long, very broad, and thick. *R. syn.* 39. n. 1. par. 2.

On stones near Sheernefs.

γ HUDS.—Leaves very long, very broad, curled at the edge. *R. syn. ib.* par. 3.

δ HUDS.—*F. phyllitidis folio*. LLWD in *R. syn.* 40. par. 2.

Mor-dowys. Welfh.

Anglesea, where the people eat the small leaves and clusters.

fingered FU'CUS *digita'tus*. Leaf hand-shaped; leaflets sword-shaped; leaf-stalk cylindrical. LINN.—Leaf flat, ribless; segments sword-shaped. HUDS. 579.

Fl. dan. 392.—Gunn. i. 3.—Ger. em. 1570. 9. 2, cop. in Park. 1292. 5. 2.—(Gmel. fuc. 30, is *F. polychides*.)

Stem as thick as a walking-stick. LINN.—Stem cylindrical, compressed, 1 to 2 yards high. GUNNER. Nor. i. 34.—Leaves red, or white, near a foot long, an inch or more in breadth, sometimes cloven, many together, fixed by a very short and slender leaf-stalk to the top of the stem. RAY syn. 47.

Sea-girdle and hangers.

Stones and rocks in the sea.

P. Jan.—Dec.

Boiled tender and eaten with butter, pepper, and vinegar, is said by Gerrard to be a good food.

furbelowed F U ' C U S *polyschi'des*. Leaf hand-shaped. Leaflets sword-shaped. Root tuberous, hollow. Stalk flat, plaited at the edge. LIGHTF. 936.—Leaf ribless. HUDS. 579.

Gmel. fuc. 30.

Root large. Stem flat, spirally twisted, more than a foot high, its top expanding into a roundish leaf which is divided into several very long segments, broad at the base, tapering to a point, sometimes forked, without a mid-rib. The substance of the plant is cartilaginous; it is sometimes 15 feet in extent; its colour greenish, changing to olive or to yellowish. Gmelin fuc. 203.

F. bulbosus. Hudf. 579.

Rocks and stones in the sea; on the coast of Cornwall, frequent.
P. Jan.—Dec.

FU'CUS *palma'tus*. Leaf hand-shaped; flat. LINN. *handed*
—Riblefs, fitting. HUDS. 579.

Lightf. 27, at p. 933.—*Gmel. fuc.* 26.—*H. ox.* xv. 8. 1.

Stem cylindrical, very short. Leaf very smooth, waved at the edge, often proliferous, variously cut into segments towards the top like an expanded hand; membranaceous, thin, pellucid, green or reddish, near a foot broad. *GMELIN fuc.* 189.

Dulleſh, Irish. *Dills*, Scotch. *Dulls*; *Dulſe*; in Northumberland.
RAY.

Rocks and stones in the sea. P. Jan.—Dec.

After being soaked in fresh water, it is eaten either boiled, or dried, and in the latter state has something of a violet flavour. It is sold in the streets of Dublin, being dried, and is said to sweeten the breath and kill worms. The poor in the North of Ireland eat it boiled. RUTTY.

FU'CUS *lacinia'tus*. Leaves flat, membranaceous, *jagged*
riblefs, branched. Branches widening, hand-shaped.
HUDS. 579.—Edges toothed and curled. LIGHTF. 947.

Gmel. fuc. 21. 1.—*Fl. dan.* 353.—(*Gmel. fuc.* 22. 2, is supposed by
Gmel. and after him by Gunn. and Retz. to be the plant, and he says
that Pallas informed him that he had found it on the Suffex coast, near
Bognor Rocks.)

Edges entire, and sometimes between toothed and curled. HUDS.
—The edges fringed when in a state of fructification. LIGHTF.—
Membranaceous, firm, pellucid, of a fine red colour. Leaf without
a mid-rid, branched, branches mostly forked. Three to 4 inches
long, 4 or 5 broad, but a single division about 1 inch broad. Sides
and ends of the branches fringed and toothed. Secondary leaves
only about a line in breadth. *GMELIN fuc.* 176.—The *F. laciniatus*
and *ciliatus* are involved in some confusion, and for want of good
specimens I dare not attempt to extricate them. Perhaps there is
no real specific difference between them. I request the attention of
botanists on our Eastern coast to determine this, and also the pro-
priety of the references, some of which I believe to be wrong, not-
withstanding they are supported by very respectable authorities.

Rocks and stones in the sea. A. April—Oct.

FU'CUS *endivia'fo'lius*. Leaf membranaceous, jagged; *endive-leav'*
segments dilated, waved; edges curled, with wart-like
dots. LIGHTF. 948. HUDS. 652.

Lightf.

Lightf. 32. f. g. at. p. 948.

Two or 3 inches in length and breadth; pale red, thin, membranaceous, without rib or nerve. Branchings irregular, segments broadest towards the ends, waved, curled and fringed. *Frustrifications* small, red, elevated, wart-like dots; at the base of the fringe.

LIGHTFOOT.

Frith of Forth, and coast of Jona.

Aug.

ciliated FU'CUS *cilia'tus*. Leaves flat, branched, fringed, HUDS. *ed.* i. 472.—membranaceous, spear-shaped, proliferous, LINN. *mant.* 136, *syft. veg.* 970.—rib-lefs, pointed. HUDS. *ed.* ii. 580.

Gmel. *fuc.* 21. 2 and 3, are referred to by *Lightf.* and after him by Mr. Hudson, but 2 is serrated and 3 is serrated-toothed.—Tourn. 335.—(Gmel. *fuc.* 20. 2, is *F. fimbriatus*.)

Flat, membranaceous, simple, 3 inches long, a line broad, narrow at each end, proliferous, fine red, without a mid-rib. Fringe of secondary leaves very long, from 1 to 1½ inch, some of the fringe shorter intermixed with the longer fibres, simple or forked. GMELIN p. 178. *Fucus ligulatus*. t. 21. f. 3. A native of the Mediterranean Sea. It does not seem to agree with our plants, though referred to as mentioned above.—Gmelin gives the following description of his fig. t. 21. 2. Membranaceous, firm, diaphanous, pale, without a mid-rib, branched, 6 inches over, branches alternate, somewhat winged. Primary leaf 1 inch broad, secondary, 2 lines; edges fringed with distant, upright bristles differing in size, simple or forked. Both surfaces have some of these bristles which are stiffer and sometimes hooked. Gmelin. *fuc.* 177. *F. holosetaceus*.—The fringe from a line to an inch long. *Frustrifications* at the end of the fringe, round, of the size of poppy seeds. HUDS. n. 25.

Rocks and stones in the sea.

A. April—Nov.

proliferous FU'CUS *pro'lifer*. Leaves somewhat membranaceous, chain-like-proliferous, cloven at the end, LIGHTF. 949.—flat, rib-lefs. HUDS. *ed.* i. 472. *ed.* ii. 580.

Lightf. 30, at p. 949.—*Fl. dan.* 708.—*Buxb.* 60. 2.—*J. B.* iii. 795. 2.

Membranaceous, red, without a mid-rib, 4 or 5 inches long, a single leaf about ¼ of an inch broad. Proliferous from the surface, not from the edge, shoots forked. *Frustrifications* red spherical warts scattered on the surface of the leaves, smaller than a pin's head. LIGHTF.—*F. crispus*. HUDS. not of LINN.

Western coast.

P. Jan.—Dec.

FU'CUS

FU'CUS *crispa'tus*. Leaves membranaceous, nearly *crisped* strap-shaped, very much branched, curled, coloured. LINN?—Flat, rib-lesf, branched, edges curled and jagged. HUDS. 580.

Gmel. fuc. 21. 4, is referred to by Mr. Hudson with a mark of doubt.

—Fl. dan. 826; and Buxb. iii. 67. 3; representing most certainly a different species from that of Gmel. are cited by Muller and Murray.

Leaf a palm long, very tender, rosy red, somewhat waved, blunt, the segments bearing fruit. *Fruifications* roundish, small, blackish reddish hue. HUDS. n. 27.—Very tender. Blood red. LINN.—Membranaceous, somewhat transparent, easily torn, a foot high, dirty yellow. *Leaf* narrow; several from 1 root, straight, 2 lines broad, without a mid-rib, very smooth, edge cut, waved and curled, minute leaflets issuing from every point, set also with bristles not more than 2 lines long, simple or divided, thread-shaped, solitary or in pairs. *Branches*, or larger lateral leaves, numerous, irregular, fringed like the others. GMELIN fuc. 179.—This description certainly corresponds well with Hudson's character, and we can hardly allow that colour alone should make them be considered as different.

Ulva ramosa. Hudf. ed. i. 476.

Rocks and stones in the sea, Cornwall, Devonshire, and Hampshire.

A. May—Oct.

FU'CUS *bif'idus*. Leaves membranaceous, flat, rib- *bifid* lesf, widening, cloven. HUDS. 581.

Root branched, flattened, creeping. *Leaf* 1 to 1½ inch long, membranaceous, once and sometimes twice cloven, wedge-shaped or widening towards the end, purple, semi-transparent. HUDS. n. 28.

Stones and rocks in the sea, Hampshire.

A. May—Oct.

FU'CUS *pinnatif'idus*. Leaves gristly, flat, riblesf, *wing-cleft* branched. Branches toothed, with winged clefts. Teeth callous, HUDS. 581.—blunt. LIGHTF. 953.

Gmel. fuc. 16. 3; and 2.—Buxb. iii. 65. 3.—(Fl. dan. 354, is *F. dentatus*.—J. B. iii. 797. 3, is more like *F. dentatus*.)

Stem olive green, the rest of the plant yellowish. Substance cartilaginous, pellucid. *Stems* roundish, many together, springing from a roundish base or fixed to the stones. *Leaves* winged, leaflets opposite or alternate, blunt. One leaf rises up much taller than the others. GMELIN fuc. 155.

Rocks and stones in the sea.

A. April—Oct.

multifid FU'CUS *multif'idus*. Leaves gristly, flat, ribless, branched. Branches alternate, pointing from 2 opposite lines, generally with doubly winged clefts, blunt. HUDS. 581.

H. ox. xv. 8. row 1. 2.

Leaf 3 to 6 inches long, strap-shaped, below narrower and thicker, brownish red, towards the end paler and yellowish; segments blunt. HUDS. n. 30.

Rocks and stones in the sea in Devonshire and Hampshire.

P? April—Oct.

dented FU'CUS *denta'tus*. Leaves membranaceous, ribless, alternately winged, indentures blunt, segments gnawed at the end.—

Fl. dan. 354.—Gmel. 9.—H. ox. xv. 8. row 2. 5.—Buxb. iii. 65.

4.—J. B. iii. 797. 3.—(Gmel. fuc. 10. 1, is a different species.

—Fl. dan. 352, in *syfl. veg. ed. xiii. and xiv. is probably a misprint for 354.*)

Red; diaphanous; hollows of the clefts rounded. Segments toothed at the end. LINN.—A very elegant plant. Stem often a foot high or more, scarcely a line in breadth, strap-shaped, flat, forked. Substance leathery, not elastic, dark brick colour, opaque, thickest in the middle. Branches narrower towards the end, lying down, but the wings upright, alternate, upper ones most numerous and most divided, sometimes proliferous. *Fruclifications* on the ends of the segments which are divided into an infinity of little teeth, supporting numerous globules which are opaque, black, deciduous. GMELIN fuc. 124.

Rocks and stones in the sea, Devonshire and Yorkshire.

A. May—Oct.

ligulated FU'CUS *ligula'tus*. Leaf membranaceous, strap-shaped, doubly winged. Wings sword-shaped, fringed. LIGHTF. 946.

Lightf. 29, at p. 946.

Leaf $1\frac{1}{2}$ to 2 feet long, about 2 lines broad, egg-shaped, herbaceous; serratures sometimes bristle-shaped. HUDS. n. 32.

F. *herbaceus*. HUDF. 582.

Frith of Forth, about New Haven and other places. LIGHTF.—Rocks and stones in the sea. Thrown on the shore near Hastings, Suffex, and in Northumberland. HUDS.—[Yarmouth shore. Mr. WOODWARD.]

P. Jan.—Dec.

FU'CUS

FU'CUS *ceranoi'des*. Leaf flat; forked; very entire; *buck's-horn* dotted; spear-shaped; fructifications tubercled; cloven; at the ends of the branches.—

Gmel. fuc. 7. 1. 2 and 3.—H. ox. xv. 8. row 1. 13.—(Bast. ii. 11.

1, is a different species.—H. ox. xv. 8. row 2. 11, is *F. canaliculatus* β.)

Nearly allied to *F. inflatus*, but narrower and more branched, and sprinkled on both surfaces with hollow dots. LINN.—Subject to vary much in its figure, so that it is necessary first to point out the circumstances to be found in all the varieties, and then to mention the differences which are less constant and do not concern the specific character. Substance cartilaginous, limber, often membranaceous, more or less pellucid. Stem flat, entire, rib-less. Branches like the stem, always forked, equal topped, like a broad topped spike. Fructifications, or something like them, minute, black, roundish globules, sitting upon as if glued to the edges of the full grown leaf, and sometimes sunk into its substance. When full grown it is 4 inches high, but often much smaller. The young plants differ so much from those of a year old as easily to be taken for a different species. It varies in colour from flesh-coloured, or yellow, to greenish or purplish. Leaves from a line to an inch in breadth, and varying in every possible degree of division. Segments either horned and pointed, or broad, curled and fringed, or warty, or stellated. Sometimes the edges are jagged, or entirely fringed, and sometimes these different appearances exist on the same plant. And lastly the whole plant is sometimes twisted spirally. GMELIN fuc. 116.

Rocks and stones on rocky shores, at low water mark between Sheerness and Munster. P. June—Nov.

β HUDS. 582.—When dry dirty green. Little branches compressed. R. syn. 44. n. 17.—Edges as well as the ends of the branches jagged. LINN.

At Brakellham, Cockbush, and other places on the Sussex coast.

♂ HUDS. 582.—Whitish. The ends star-like. R. syn. 44. n. 18.

In the same places with β.

γ HUDS. 583.—The ends membranaceous, widened, torn. R. syn. 44. n. 19.

Gmel. fuc. 22. 3.—and ib. 23.

Four inches high; membranaceous, pellucid, fine red. Stem flat, nervous, enlarged on each side with membranaceous rudiments, which expand into broad leaves; these leaves are hand-shaped with many clefts, waved, scolloped, ribless, irregularly divided, clefts differing in depth, generally three at the end, which is rounded. GMELIN fuc. 183.—Narrower and more branched than the preceding; marked on each surface with scattered hollow dots. LINN.

Fucus lacerus. LINN.

Sea shores, common.

♂ HUDS. 583.—Leaf flat, forked, very entire, dotted, egg-spear-shaped, inflated, divided at the end. LINN. *sp. pl.*

F. inflatus. Linn. Lightf. 910.

Shore near Muffelborough.

July—Aug.

ε Leaves broader, and warty.

H. ox. xv. 8. row 1. 13.

Well represented by the above figure. Convex on one side, concave or channelled on the other, which circumstance probably induced Mr. Hudson to refer it to the *F. canaliculatus*. Major VELLELY.

Fucus excisus. Hudf. 583.

furrowed

FU'CUS *canaliculatus*. Leaf flat, forked, very entire, channelled, strap-shaped. Fructifications tubercled, divided into 2 parts, blunt. LINN. *syft. nat. ed. xii.* 716. *syft. veg. ed. xiii. and xiv.*

Gmel. *fuc.* 1. A. 2.—Fl. *dan.* 214.—*H. ox.* xv. 8, row the last, 12.

Many times forked, smooth, narrow, one side convex, the other channelled. Bladders terminating, divided into 2, or in pairs, sitting, sprinkled with perforated tubercles. LINN. *syft. nat.* 716.—Channelled or cut into longitudinal hollows on one surface. Stems and leaves ribless. GMELIN *fuc.* 73.

Rocks and stones in the sea.

P. June—Aug.

β Dotted at the forks. Forks straddling. LINN.

H. ox. xv. 8. row 2. 11.

F. excisus. Linn. *sp. pl.* 1627. *syft. nat. ed. xii.* 715. Hudf. *ed.* i. 468.

γ—*H. ox.* xv. 8. row 1. 13.

F. canaliculatus β Hudf. 583.

δ—Gmel. *fuc.* 1. A. 3.

F. canaliculatus γ Hudf. 583.

***** *Leaf compressed.*

narrow-leaved

FU'CUS *lo'reus*. Leaf thread-shaped, compressed, forked, tubercled all over. LINN.—Leaf pointed, tubercled with scattered vesicles. HUDS. 583.

Fl. *dan.* 710.—Schlosser in *Gent. Mag.* 1756, p. 64. f. 1 to 4.
—Dod. 479. 2, repr. in *Ger. em.* 1568. 5, and cop. in *Park.* 1293. 6, the uppermost of the 3.

Tall, forked, strap-shaped, compressed; set with raised, blunt tubercles. LINN.—This plant at its first appearance so much resembles a Fungus, that some authors have mistaken it for one. Ray seems

seems to have described it as a distinct species under the name of "Fucus Fungis affinis." Syn. p. 43. n. 15. from the center of the little Fungus-like substance 3 or 4 shoots arise, and extending by degrees into branches, constitute the perfect plant. The little Fungus still continues and forms a kind of fence or cup at the base of the stem.

Sea Thongs.

Rocks and stones in the sea. Mount's-bay, Cornw. P. June—Sept.

FU'CUS *elongatus*. Leaf thread-shaped, compressed, *elongated* forked, jointed. Knots somewhat swollen: LINN.—Leaf downy, blunt. HUDS. 584.

H. ox. xv. 8. row 2. 7, was referred to by Linnæus in the sp. pl. but in mant. 508, directed to be erased. Mr. Hudson has notwithstanding retained it.—(Dod. 479. 2, repr. in Ger. em. 1568. 5, and cop. in Park. 1293. 6, is F. loreus.)

Swollen and jointed at the forks, so that in drying they often separate. LINN.

F. tomentosus. Hudf. 584.

Rocks and stones in the sea, Cornwall. Near Exmouth, Devonshire, and Yorkshire. P. May—Oct.

FU'CUS *nodosus*. Leaf compressed; forked. Leaflets *knotted* pointing two ways; very entire. Bladders in the substance of the leaf, solitary; dilated.—

Fl. dan. 146.—Bastar 11. 5.—Dod. 480. 1, repr. in Ger. em. 1568.

6, a portion of a branch cop. in Park. 1293. 6, the left hand lowermost figure.—Gmel.fuc. 1. B. 1.—H. ox. xv. 8. row 3. 2.

Bladders egg-shaped, growing in the middle of the branches, broader than the branches. Leaflets spear-shaped, blunt, from the edges of the leaf. LINN.—Hard, leathery, 6 feet long; yellowish when fresh, blackish when dry. Stem variously branched; flat, about $\frac{1}{2}$ inch broad. Trailing, entire or winged, or alternately winged and forked towards the ends. Leaves simple, in pairs; several from the same fork of the branch, none towards the bottom of the stem. Leaf-stalks very short. The thicker leaves contain granulated fructifications in a mucus fluid. Air-vessels both on the stem and on the leaves, large, elliptical, hollow. GMELIN fuc. 79.

Rocks and stones in the sea.

P. May—Oct.

♀ Stem serrated. LIGHTF. 920.

Gmel.fuc. 1. B. 2.

pigmy FU'CUS *pygmæ'us*. Leaf gristly, compressed, widening and hand-shaped at the end. Fructifications terminating, roundish, perforated at the end. LIGHTF. 964.—Leaf forked. Forks straddling, those nearest the end with vesicles, mostly solitary, growing in the substance of the leaf. Fructifications globular. HUDS. 584.

Lightf. 32. 1, at p. 948.

Leaf nearly 6 inches long, gristly, nearly flat, narrower below, blackish olive-coloured and sometimes purplish blue. Vesicles sometimes double, round, inflated. Fructifications small, smooth. HUDS. n. 38.—This plant might with propriety be called a marine Lichen, as it has not only the habit of a Lichen, but the spherical vessels which are hollow and open at the top bear the strongest resemblance to the saucers peculiar to those plants. Major VELLEZ.

F. pumilus. Hudf. 584.

Rocks in the little isles of Jura washed by the tides, on the coast of Jona, and in the Frith of Forth, and several other places. LIGHTF. —Rocks and stones in the sea between high and low water mark. HUDS. P. June—Oct.

filiform FU'CUS *filifor'mis*. Leaf gristly, thread-shaped, compressed, forked, pointed. HUDS. 585.

Leaf $\frac{1}{2}$ foot long, semi-transparent, reddish. HUDS. n. 39.

Rocks and stones in the sea near the Isle of Walney, Lancashire.

P. May—Oct.

horny FU'CUS *cor'neus*. Leaf gristly, compressed, very much branched. Branches alternate, from 2 opposite lines, winged. Segments opposite, bristle-shaped. Fructifications roundish, on fruit-stalks. HUDS. ed. i. 474. ed. ii. 585.—Leaf gristly, thread-shaped, compressed, branched. Little branches bristle-shaped, winged. LIGHTF. 956.

Gmel. fuc. 15. 3, cited by Lightf. and by Hudf. with a note of doubt.

—Gmel. fuc. 18. 3, is also referred to by Lightf.—Gunn. ii. 2. 8, seems a better figure of the same plant.

Rocks in the sea on the coast of Cornwall and Devonshire.

P. May—Oct.

pinnated FU'CUS *pinna'tus*. Leaf gristly, thread-shaped, compressed, generally triply winged; segments awl-shaped, nearly upright. HUDS. 586.

Leaf 3 inches long, red, sometimes doubly winged, pointed; segments opposite, very short. HUDS.

Rocks and stones in the sea, Cornwall, Devonshire, Suffex, and Scarborough. A. May—Oct.

FU'CUS *obtu'sus*. Leaf gristly, thread-shaped, compressed, mostly doubly winged; segments inversely egg-shaped, with tubercles at the end. HUDS. 536. *obtuse*

Leaf 4 inches long, semi-transparent, purplish; segments opposite, expanding. HUDS. n. 43.

Stones and rocks in the sea near Hastings, Suffex, and Devonshire. A. May—Oct.

FU'CUS *fili'cinus*. Leaves gristly, compressed, blunt, mostly triply winged. Segments horizontal, blunt. HUDS. ed. i. 473. ed. ii. 586. *fern-leaved*

(Gmel. fuc. 16. 2, is only doubly winged, and is *F. pinnatifidus*.)

(*F. filicinus*. Lightf. 955, is *F. pinnatifidus*.)

Rocks and stones near Walney, Lancashire. A. May—Oct.

FU'CUS *cartilagin'eus*. Leaf gristly; compressed; more than doubly compound; winged. Segments strap-shaped.— *cape*

Mill. illustr.—Gisek. 25.—Gmel. fuc. 17. 2, the very end is the only part which gives any tolerable idea of the shape of the ramifications.

Stem depressed, very much branched. Branches alternate, very long, alternately winged, with an odd one at the end. Wings cut into winged clefts; segments thick, awl-shaped and fructifying at the ends. This plant is often 3 feet high, its substance gristly, its colours very elegant, but variable, reddish green, brownish red, yellowish, and all these often existing in the same individual plant. GMELIN fuc. 158.

Rocks and stones. Cornwall. STEVENS in R. syn. 586.

P. Jan.—Dec.

FU'CUS *coccin'eus*. Leaf gristly, compressed, very much branched. Little branches alternately pointing one way. Fructifications globular, lateral. HUDS. 536. *scarlet*
—Leaf membranaceous-gristly. Little branches alternately pectinated. LIGHTF. 957.

Clus. ii. 250. 1, repr. in Ger. em. 1573. 9, and cop. in Park. 1289.

2.—Gmel. fuc. 16. 1.—Fluk. 48. 2.—(J. B. iii. 797. 2, is justly rejected by Dill. in R. syn.)

Substance membranaceous, gristly, fine red, often with some white or yellow intermixed, very rarely green; about 4 inches high. Stem half a line in diameter, cylindrical but depressed, upright, soft,

flexible, soon becoming flat. Branches, the large ones, alternate, long, exactly similar to the stem. Secondary branches winged. Wings composed of thick awl-shaped segments, somewhat crooked, from 2 to 5 lines long. Fructifications globular, black, sitting on the sides of the stem or branches; now and then one appears with a short fruit-stalk. GMELIN fuc. 154.

F. cartilagineus. Hudf. ed. i. 473.

Rocks and stones in the sea.

P. June—Oct.

feathered FUCUS *plumosus*. Leaves gristly; spear-shaped; doubly winged; feather-like. Stem thread-shaped; compressed; branched. LINN.—Leaf compressed, branched. Branches doubly winged. Fructifications on fruit-stalks, globular, radiated. HUDS. 587.

Gunn. ii. 2. 15.—Fl. dan. 350.—R. syn. 2. 5, at p. 60.—Pluk. 48. 2? but Giseke in his index calls it *F. cristatus*, which may be a misprint for *crispatus*.

About 5 inches high, purple red.—Stem depressed, very much branched, branches irregular, thick. Leaflets doubly winged, with soft, undivided, crooked threads, thickest at the end and with something of a jointed appearance. GMELIN fuc. p. 152.

Resembles *F. abrotanifolius*, but is winged like a *Hypnum*, and small. LINN.

Rocks and stones in the sea.

P. Aug.—Oct.

***** *Leaf cylindrical.*

thread FUCUS *Filum*. Leaf thread-shaped; somewhat brittle; opaque.—

Fl. dan. 821.—Fet. gaz. 91. 5.

Leaves not swimming on the surface of the water but just below it. LINN. fuc. n. 1153.—Thread-shaped, thinnest at both ends, about a line in diameter, undivided, smooth, filled with mucus, separated internally into joints, cartilaginous, brittle, often matted together, twisting spirally when dry. Colour green, blackish brown when dry, bleaching on the shore to a straw colour or a white. GMEL. fuc. 132.—The bleached specimens sometimes shew the joints extremely distinct, as is the case with one now before me sent by Major Velley, who observes with Mr. Lightfoot that the transverse septa almost reduce it to the genus *Conferva*.

Sea Laces.

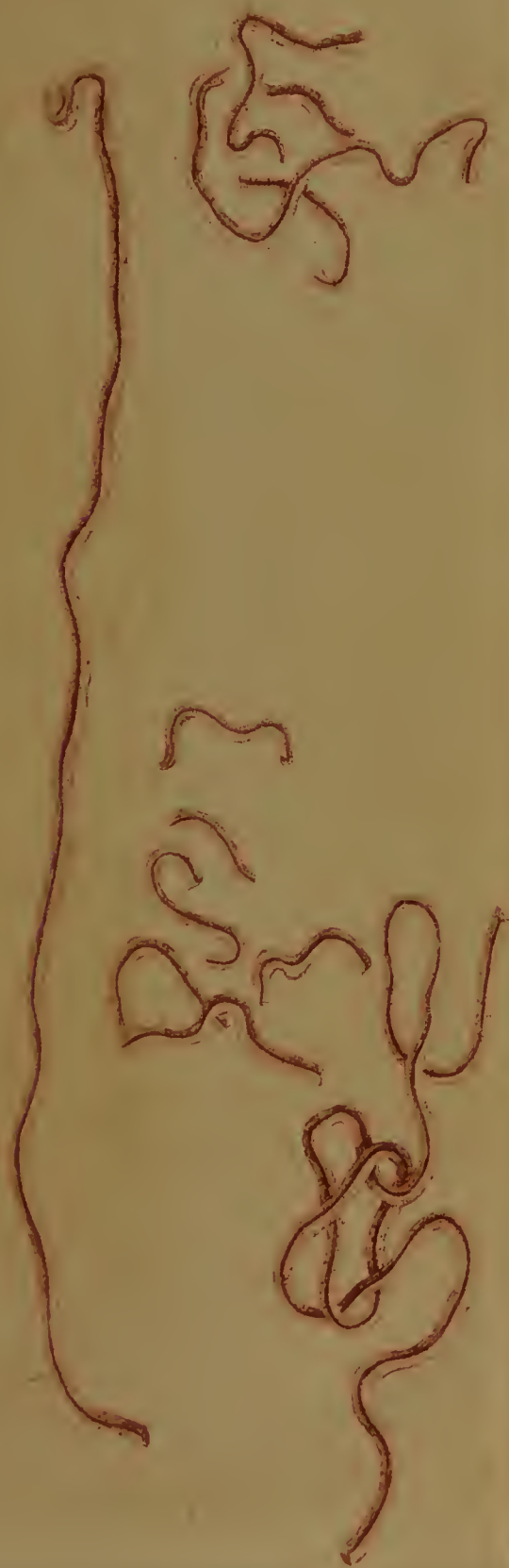
Rocks and stones in the sea.

P. Jan.—Dec.

almond llof-som FUCUS *defractus*. Leaf thread-shaped, simple, diaphanous, viscid.—

Fl. 17. f. 3.

This



Ulva defracta vide Fuc. defructus.



2. *Fucus elminthoides*.

1. *Fucus bifurcatus*.

This Fucus is found in masses, the stems simple, but variously coiled up, being very elastic as well as glutinous; from 8 to 12 inches long, cylindrical, nearly the eighth of an inch in diameter, terminating obtusely. It consists of a diaphanous membrane replete with a clear gelatinous substance. Inner surface of this membrane interspersed on every part with innumerable minute specks, which at first give the whole plant the beautiful hue of the almond blossom; but as the gelatinous substance diminishes, these granulated substances attain a kind of orange-colour, and from the outer fine membrane collapsing upon them they become more distinct, appearing almost as if fixed on the outer surface. It has none of the transverse septa so observable in the *F. filum*. Found not unfrequently, at low water, on the beach at Weymouth; but I never could discover any root upon the various specimens I have examined. As they adhere closely together, and are very tender, they are probably broken by the flux of the sea, and torn off from their base. Specimen and description from Major VELLE Y.

FU'CUS *elminthoides*. Thread-shaped, entire, or but little branched, opaque, slippery, end bluntish.*—

Pl. 17. f. 2.

Resembles a worm in its writhing form, size, and mucilaginous nature. It rises from a thick, blunted base, like glue, fixed in the interstices of the rocks. It is generally simple, sometimes a little branched toward the middle of the plant, sometimes 5 or 6 grow together, in which case they are proportionally reduced in size, which in the largest seldom exceeds that of a goose-quill; from 4 to 7 inches long, blunt at the end. Colour resembling, but sometimes lighter than that of glue. It is soft, and consists of a fine membrane which on its internal surface seems crowded with extremely minute, opaque, granulated bodies. If cut horizontally into very thin lamina, these grains appear fixed in a clear gelatinous substance which constitutes the interior body of the Fucus, and they seem to occupy about one third part of its surface in a circular direction, leaving the middle part perfectly clear, through the center of which a dark parenchymous line passes, from one extremity to the other.

Grows in abundance upon the rocks off the Beal, at the extremity of Portland, at very low water. June. July. I could not find it in October, so that I suppose from its mucilaginous texture it soon perishes; whereas the *F. furcellatus* or *lumbricalis* of Gmelin hardens like a sinew. Major VELLE Y.

F U C U S (*elminthoides*) Filiformis, simplex, vel sub-ramosus, opacus, subricus, apice sub-obtus. M. VELLE Y.

FU'CUS

pedunculated **FU'CUS** *peduncula'tus*. Leaf gristly, thread-shaped, branched. Branches bristle-shaped, bearing fruit, scattered. Fructifications scattered, on fruit-stalks, oblong. HUDS. 587.

Leaf 9 inches long, semi-transparent, yellowish. Branches very simple, long. Fructifications numerous, small, brownish. Fruit-stalks long. HUDS. n. 49.

Rocks and stones in the sea. Portland island. A. July—Sept.

warty **FU'CUS** *verruco'sus*. Leaf gristly, bristle-shaped, branched. Branches very long. Fructifications lateral, globular, sitting. HUDS. ed. i. 470. ed. ii. 538.

Fl. dan. 358 and 650.—Gmel. fuc. 13.

Two feet high, or more; cartilaginous, yellowish green or brownish purple. Stem upright, thickness of thin packthread. Branches very long, often pointing 2 ways, often alternate, often without any regular order. Small scattered globules on the sides of the branches.

GMELIN.

F. flagelliformis. LIGHTF. 928.

Rocks and stones in the sea. Suffex, Hampshire, and Cornwall.

P. June—Oct.

white **FU'CUS** *al'bidus*. Leaf gristly, thread-shaped, nearly round, somewhat forked. Branches bristle-shaped, distant, mostly pointing one way. Fructifications lateral, roundish, sitting. HUDS. 538.

Gmel. fuc. 14. 1.—(Fl. dan. 403, is *F. plicatus*.)

From 2 to 12 inches high, or more. Stem cylindrical, cartilaginous, but tender, very pellucid, set with numerous small dots with a perforated appearance; branches from near the root; resembling the stem, nearly as thick, but very short; divisions and sub-divisions of the branches finer and finer. Branches often on one side, sometimes on both; sometimes forked, generally solitary. Warts or capsules, lateral, sitting, frequent, pellucid, solitary, or in pairs, distant or crowded, varying in size, open at the top. GMELIN 136.—I have seen a specimen sent to Major Velley from the Eastern coast by the Hon. Mr. Wenman, which by no means accords with Gmelin's figure, though it agrees pretty well with his description. In this specimen the branches are winged with and terminated by bristly threads as fine as hairs; the fructifications are pretty numerous, some sitting in the forks and on the sides of the branches, and others terminating the above-mentioned bristly threads, so that they appear as if standing upon fruit-stalks.

Rocks and stones in the sea, common.

P. June—Oct.

FU'CUS

F U' C U S *bifurcatus*. Leaf thread-shaped, somewhat *tuberculated* forked. Branches blunt, tubercled. HUDS. 588.—Divisions of the forks oval, not angular. M. VELLE.—Branches parallel. WITH.

Pl. 17. f. 1.

Nearly allied to *F. fastigiatus*, but differs in not being uniformly forked nor level, the branches being unequal, and the longest sprinkled with tubercled fructifications. HUDS. n. 52.—From 5 to 9 inches high. Root compact, cartilaginous, adhering strongly to the rocks. Stems undivided for the space of 3 or 4 inches from the root, when they become forked, and proceeding 3 or 4 inches higher strike out into a continued series of very short forked branches clustered together. All the stems are perfectly cylindrical, nearly of an equal size throughout, seldom larger than a crow-quill, but in general thicker than the *F. fastigiatus* and *F. furcellatus*, and are more regularly forked than any I have met with, the *F. loreus* excepted. It differs from the other forked Fuci in invariably maintaining an oval mode of growth instead of an angular one at the forks, and also in the rounded blunt termination of the branches. At the latter end of summer, on examining the forked tops of the plant, several of them appeared replete with opake substances. On making a longitudinal incision into these, I clearly discovered, by the help of a moderate magnifier, the form and direction of these vessels which proceeded from a point, or kind of puncture in the inner side of the membrane. They evidently grew in a conical shape, and resembled a *Peziza*. The tops of these *Peziza*-form vessels were regularly dilated and somewhat prominent, covered with small dark globular grains. Differs from the *F. fastigiatus* and *furcellatus*, in being less branched than either of them, but particularly in the forked extremities of the latter constantly originating in acute angles. It differs also from the *F. rotundus* of Gmelin; for besides the forks being acute in the *rotundus*, the fructifications grow in excrescences on various parts of the stem; and for this last reason among others, it cannot be the *F. angulatus* of that author. Mr. Hudson has named this plant the *F. tuberculatus*, but as several other Fuci put on *tuberculated* appearances in maturity, I have in conformity to its character, and mode of growth, called it *F. bifurcatus*. Major VELLE.

Fucus tuberculatus. HUDS.—(*F. tuberculatus*. Lightf. 926, is *F. purpurascens*.)

On rocks and stones in the sea near St. Ives, Cornwall.

P. June—Oct.

F U' C U S *fastigia'tus*. Leaf thread-shaped, forked, *forked* very much branched. Branches nearly of the same length,

length, blunt. LINN.—Vesicles spear-shaped, terminating, HUDS. 538.

Fl. dan. 393, (plant of Linn.)—*H. ox.* xv. 9. row 2. 9.—*Gmel. fuc.* 6. 1, the end of a branch.

Cartilaginous, rather thick, 6 inches high, or more, colour yellowish or olive brown. *Stem* cylindrical, thickness of a small packthread, upright, branched. *Branches* rising to an equal height, forked, shorter than in the *F. furcellatus*. *Frustrifications* on the ends of all the branches, egg-spear-shaped flattened vesicles, bordered by a furrow, opening at the top when ripe, and pouring out a prolific mucus. Gmel. fuc. 106.—Bleaches to the colour of isinglass, and has then a horny appearance when dry. Agrees with the Linnæan character, except that it cannot be considered as *very much branched*.

F. fastigiatus and *furcellatus*, Hudson and Lightfoot, the same, the *fastigiatus*, Linnæus, seems to be different.

Rocks and stones in the sea.

P. June—Oct.

β Uppermost branches more tapering to a point.

Fl. dan. 419.—*H. ox.* xv. 9. row 1. 4.—*Gmel. fuc.* 6. 2.

Six inches high; cartilaginous, opaque, brown turning black; the young plants reddish brown or greenish. *Stem* single, splitting at about an inch from the root, or else rising in two or more separate stems from its origin. *Branches* shaped like a worm, filled with slime containing granulations. Gmel. 108.—Approaches very nearly to *F. fastigiatus*, but longer, and the *Branches* thicker. Is mostly red. LINN.—Probably no more than a variety. LIGHTF. 932.—*F. fastigiatus* and *furcellatus* are one and the same species. I have a specimen in my possession, in which they both grow from one root, and one branch is divided with *furcellatus* on one part and *fastigiatus* on the other. *F. fastigiatus* I am inclined to think will be found to be the flowering and *furcellatus* the fruiting plant. Mr. WOODWARD. ST.—Scarcely different from the *F. fastigiatus*. Major VELLEY.

F. lumbricalis. Hudf. ed. i. 471.—*F. furcellatus*. Hudf. ed. ii. p. 589.

Rocks and stones in the sea, and on the sea beach. P. Jan.—Dec.

diffuse F U' C U S *diffusus*. Leaf gristly, thread-shaped, forked, straddling, spreading. HUDS. 539.

Leaf $\frac{1}{2}$ a foot long, of the thickness of shop packthread, yellowish or purplish, semi-transparent, very much straddling, the ends pointed. HUDS. n. 55.

Rocks in the sea. Cornwall, Devonshire, and Portland Island.

P. Jan.—Oct.

matted F U' C U S *plicatus*. Leaf gristly, thread-shaped, matted, semi-transparent. HUDS. 589.—Little branches mostly pointing one way. LIGHTF. 929.

Gmel. fuc. 14. 2.—Pluk. 184. 2.—Fl. dan. 408.

About 6 inches high; horny, tough, orange red, rigid and brittle when dry. Stems very numerous, crowded together at the root, cylindrical, serpentine, little branches from the sides, and forked at the end. Gmel. fuc. 142.

Rocks and stones in the sea.

A. May—Nov.

FU'CUS *purpurascens*. Leaf thread-shaped, very purple much branched. Little branches bristle-shaped. Fructifications globular, in the substance of the leaf. Huds. 589.—Leaf cylindrical. Branches alternate. Little branches with tubercles. Tubercles roundish, distant, in the substance of the leaf. SOLANDER in Fl. scot. 926.

Substance cartilaginous, tender, about 2 inches high; purple, pouring out a purple fluid. Stem thread-shaped. Branches very numerous, divided and sub-divided, the extreme divisions very slender; alternate or opposite, thread-shaped, supporting fitting globules. The whole plant abounds with black spots. Gmel. fuc. 139.

F. *purpureus*. Hudf. ed. i. 471.—F. *tuberculatus*. Lightf. ib.

Rocks and stones in the sea,

P. May—Oct.

FU'CUS *incurvus*. Leaf thread-shaped, very much pine branched. Branches tiled, the ends rolled in. Little branches awl-shaped, pointing mostly one way. Huds. 590.

Gmel. fuc. 11. 1.

Root rather woody, tough, round. Stem a foot high, or more, branched. Branches set on every side with crooked sharp bristles, all pointing upwards, of different sizes, sometimes $\frac{1}{2}$ an inch long. Fructification consists of globules fitting, or on foot-stalks, on the sides or in the forks of the branches. Gmel. fuc. 127.

Rocks and stones in the sea. Suffex.

P. Jan.—Dec.

FU'CUS *aculeatus*. Leaf thread-shaped, compressed; prickly very much branched; edged with awl-shaped, alternate, upright teeth.—

Fl. dan. 355.—H. ox. xv. 9. row 1. 4.—Gmel. fuc. 12.—(Fl. dan. 357, is erroneously referred to this in the index at the end of fasc. xiii.)

Resembles the tail of a horse.—Greatly branched, sometimes 2 feet long. Root thick, in some degree globular, from whence 2 or 3 principal stems proceed which throw out branches on each side in an alternate series, 2 or sometimes more growing from the same knot or joint; and these also are sub-divided into long slender thread-shaped but flattened leaves, each of which, as well as the second branches, are

armed

armed with short sharp-pointed prickles. Stems thread-shaped. Plant olive green. Major VELLEY.

Rocks and stones in the sea, Devonshire, Cornwall, and Northumberland. P. May—Oct.

β muscoides. Hudf. 590.—Thread-shaped. Branches very numerous, diverging, zigzag.

Rocks in the sea. Yorkshire, Northumberland, but not common. P. May—Oct.

amphibious FU'CUS *amphib'ius*. Leaf thread-shaped, very much branched. Branches alternate, rolled in. Little branches very short, with many clefts. Fructifications oblong, on fruit-stalks. HUDS. 590.

R. syn. 2. 6, at p. 60.—*Pluk.* 47. 13.

About an inch high, woody, livid or greenish, to blackish. Stem soon becoming branched. Branches dividing and subdividing, alternate, the ultimate branches extremely fine. On the sides of the branches there are short teeth, which swell and coil up; they contain slime, and seem to perform the office of fructification. GMEL. fuc. 135.

F. scorpioides. Hudf. ed. i. 471.

Rocks and stones in the sea, and in salt water ditches and salt marshes. P. July—Sept.

woolly FU'CUS *lanofus*. Leaves hair-like, forked, very much branched, rough. LINN.—Fructifications tubercled, lateral. HUDS. 590.

A span high, resembling black wool. Rough with dots placed nearly in whorls and only visible when magnified. LINN.

Rocks and stones in the sea. Isle of Walney, Lancashire.

P. July—Oct.

rough FU'CUS *confervoides*. Leaf thread-shaped, very much branched, rough. Branches tiled, hair-like. Little branches very short, bundled, finely toothed. HUDS. 591.

Leaf $\frac{1}{2}$ foot long, stiffish, opaque, black. Branches very numerous. Little branches with many clefts, toothed, teeth blunt. HUDS. n. 62.

Stones and rocks in the sea, in Yorkshire and Cornwall.

P. May—Oct.

capillary FU'CUS *capilla'ris*. Leaf thread-shaped, very much branched. Branches alternate. Little branches mostly pointing one way, awl-shaped, short. HUDS. 591.

Leaf

Leaf nearly $\frac{1}{2}$ a foot long, blackish purple. *Branches* alternate, hair-like, long. *Little Branches* semi-transparent, very short. HUDS. n. 63.

Stones in the sea near Sheerneys, Isle of Shepey, Devonshire and Cornwall. P. April—Oct.

1323. CONFER'VA. River-weed.

Fibres simple; uniform; like hair or thread.

ESS. CHAR. *Unequal Tubercles, on very long, hair-like fibres.*

Obs. These fibres are either continued or jointed.

* *Threads simple, equal, without joints.*

CONFER'VA *rivula'ris*. Threads undivided; common equal; very long.—

Dill. 2. 1.—Mich. 89. 7.—Lob. obs. 654. 1, repr. in Ger. em. 1570. 11, and cop. in Park. 1261. 2.—(Fl. dan. 881, is sometimes forked.)

Entirely formed of threads, from 1 to 2 cubits or more in length, extremely slender, floating, not branched, green, shining like silk.

DILL. 2.

Crow-silk.

Slowly flowing brooks and rivers.

P. Jan.—Dec.

♂ HUDS. 591.—Shorter and thicker.

Dill. 2. 2.—Mich. 89. 6.

Wide spreading, 1 to 2 feet long; thick as a hair, rarely matted, pale green, shining. DILL. 13.

In ditches in fields near Mitcham, Surry. DILL.

CONFER'VA *fontina'lis*. Threads undivided; spring equal; shorter than one's finger.—

Fl. dan. 651. 3.—Dill. 2. 3.—Mich. 89. 8, 10, 11.

Consisting of very fine, short, unbranched, hair-like threads, crowded together. Varies in colour, in aerated waters ochrey and harder, in common springs brownish or dark coloured, in rivulets dark green. DILL. 14.—Threads an inch long, collected about a center, which is yellowish, the extremities dark green. LINN.

On stones in rivulets and springs. In the New River near Hornsey. DILL. A. March—June.

cataraët CONFER'VA *confrago'sa*. Threads slimy, simple, equal, violet, LIGHTF. 976.—not a finger's length: HUDS. 592.

Dill. 2. 4.

The whole forms a slippery mucous substance. Threads short, so fine and so densely crowded together that no eye can distinguish whether they are entire or branched; shining when dry, a fine violet colour. It adheres to the paper without gum. DILL.

Near Llanberris, Wales. DILL.—On rocks in the waterfalls on Goatfield, in the Isle of Arran. LIGHTF. A. May—Oct.

** Threads branched, equal.

forked CONFER'VA *furca'ta*. Threads equal; branched at the ends. Branches simple. HUDS. 592.

Dill. 2. 6.

Extremities 2 or 3 forked; pale, not shining, nearly white when dry. DILL.

Gently flowing brooks.

A. Oct.—May.

β HUDS.—Threads shorter; thicker; and more branched. DILL.

Dill. 3. 10.

Threads 2 to 4 inches long, irregularly dispersed, not taking any determinate figure in the water, about as thick as a hair; green, greyish and not shining when dry. In spring and summer it is of muddy dull green; in autumn it seems renovated and changes to a more lively green. DILL.

Ditches.

bristle CONFER'VA *dichot'oma*. Threads equal; forked.—

Dill. 3. 9

Grows upright, crowded together; dull green, Threads smooth, from 4 to 12 inches high, or more, forked divisions beginning about the middle, and these again repeatedly divided and subdivided into other forks. DILL.

Below Charlton, Kent, in the marsh ditches near the Thames. MERR. 28.—Salt water ditches between Greenwich and Woolwich. DILL.—Near Gravesend. HUDS. P. Jan.—Dec. DILL.

cotton CONFER'VA *bullo'sa*. Threads equal; branched; matted; inclosing air bubbles.—

Dill. 3. 11.

Threads slender, 3 inches to a foot or more in length, green, or dull yellowish green, soft; rather silky, sending out from the sides other finer and shorter threads. The threads are so much matted together, as to retain bubbles of air under the water. DILL.

Ditches,

Ditches, pools, and the sides of cisterns. A. March—June. HUDS.
Spring, Summer, and Autumn, and in cisterns all the year. DILL.

CONFER'VA *canalicula'ris*. Threads equal, more *mill*
branched towards the base. LINN. — Branches long.
HUDS. 593.

Dill. 4. 15.

Densely crowded, deep green, soft and spongy or velvety to the touch. *Threads* and *Branches* slender, very much branched downwards, but little so towards the ends, 1 to 2 inches high; soft and herbaceous when taken out of the water, but when dry it acquires an almost stony hardness, from the mud adhering to it. DILL.

Clear brooks and mill-pond troughs. DILL. P. Jan.—Dec.

CONFER'VA *amphib'ia*. Threads equal, branched; *amphibious*
when dry uniting into stiff sharp points. —

Dill. 4. 17.

Fibres innumerable, densely matted together, extremely fine, so that it is difficult to say whether it be branched or not, green. In streams it grows 2 or 3 inches high, and thrown on the shore the threads unite in bundles at the top, and adhere so as to have a thorn-like appearance. In other situations it forms a kind of skin on the ground. DILL.

Banks of rivers, ditches, damp walls, Autumn and Winter; and in Summer in moist shady places. P. Jan.—Dec.

CONFER'VA *rig'ida*. Threads equal, very much *rigid*
branched, stiffish; lesser branches alternate, very short.
HUDS. 594.

Dill. 4. 16.

Several stems arise from one common base, fixed to a stone. Dull green, tending to brownish; moderately stiff, somewhat hairy. *Stems* branched on every side, and divided, particularly towards the ends, into fine fibres. DILL.

Clear water and where the stream is most rapid. In a stream on Hounslow Heath, and in the Lug near Mortimer's Cross, Herefordshire. DILL. P. Jan.—Oct.

CONFER'VA *fœnicula'cea*. Threads equal, very *fennel-leaved*
much branched; branches and sub-divisions of the branches
very long, scattered. HUDS. 594.

Dill. 2. 3.—Barr. 1123. 1.

Threads irregularly divided like the leaves of fennel; soft and greenish when young, brownish and stiffer when old. DILL.

C R Y P T O G A M I A.

Isle of Man on rocks covered by the tide. DILL.—Cornw. HUDS.
A. June—Oct.

soft CONFER'VA *littora'lis*. Threads equal, very much branched, pretty long, roughish, LINN.—soft. LIGHTF. 979.

Dill. 4. 19.—(Dill. 3. 13, is *C. albida*.)

From 4 to 12 inches long, yellowish green, with very numerous slender hair-like divisions; very soft and tender, but not gelatinous. DILL.

C. plicata. Hudf. ed. i. 484.

Rocks and stones in the sea.

A. May—Oct.

flock CONFER'VA *tomento'sa*. Threads equal, very fine, very much branched. Branches undivided, long, crowded, brown. HUDS. 594.

Dill. 3. 13.

Brownish red, especially when dry. Threads covered with a downy coat which it is difficult to remove; but this and its colour readily distinguish it. DILL.

Rocks, stones, and Fuci.

A. May—Oct.

whitish CONFER'VA *al'bida*. Threads equal, very fine, very much branched. Branches undivided, bundled, whitish. HUDS. 595.

Dill. 3. 12.

Threads nearly an inch long, whitish. Branches alternate. Little Branches bundled, simple, whitish, rising nearly to the same height. HUDS. n. 13.—Pale green. Threads so fine as hardly to be discernible by the naked eye. Substance soft, both fresh and also when dry, like cotton. DILL.

Ditches, bogs, and pools.—Island of Selfey, Suffex. DILL.

A. Oct.—May.

sea-green CONFER'VA *ærugino'sa*. Threads branched, soft, shorter than one's finger, green.—

Dill. 4. 20.

Colour an elegant cærulean green, which it retains when dry, so that this alone distinguishes it. Threads short, numerous, very fine, shining and silky when dry. DILL.

On Fucuses, common.

A. June—Oct.

black CONFER'VA *ni'gra*. Threads equal, branched, very long. Branches alternate, with many clefts, very short. HUDS. 595.

Threads

Threads 5 inches long, stiffish, black. *Branches* bundled. HUDS. n. 15.
Yorkshire coast. A. May—Oct.

CONFER'VA *scopa'ria*. Threads proliferous, of broom the same length, rough with hair.—

Dill. 4. 23.—J. B. iii. 811. 2.—Lob. obs. 648. 2, repr. in ic. ii. 249. 2, Dod. 475. 2, and Ger. em. 1571. 2; and cop. in Park. 1296. 3, and again in Ger. 1379. 2, a good representation of it, though not intended for it.

Branches woolly and hairy, spreading in all directions; smaller branches nearly of equal length, finely toothed; dull green; reddish brown when old and dry. DILL.

Sea shores, common.

A. May—Oct.

CONFER'VA *cancella'ta*. Threads branched; lesser latticed threads alternate, short, with many finger-like divisions.—

Dill. 4. 22.

Colour pale, dirty. *Stems* giving out many crooked branches near 2 inches long, which are set with hair-like threads or tendrils, giving a roundish figure to the branch, with an appearance of hollowness within. DILL.—The lateral filaments retain air as if in so many vesicles. LINN.

Stones and rocks in the sea, common.

P. Jan.—Dec.

CONFER'VA *multif'ida*. Threads equal, very tufted much branched. Little branches opposite, very short, with many clefts. HUDS. 596.

Threads 4 inches long, somewhat jelly-like, red. *Branches* opposite, very long. *Little Branches* very fine, remote, and appearing whorled. HUDS. n. 18.

Stones and rocks in the sea on the coasts of Hampshire and Dorsetshire.

A. May—Oct.

*** *Threads growing into one another.*

CONFER'VA *reticula'ta*. Threads uniting so as net to form a sort of net-work.—

Dill. 4. 14.—Pluk. 24. 2, cop. in H. ox. xv. 4. row 3. 4, and Pet. gaz. 51. 3.—(Barr. 1123. 2, must be a different species.)

Whole plant resembling a net, green, the meshes 4 to 6 cornered. RELH. n. 904.—Silky, shining, green. Threads solid, nearly as thick as a hair, connected so as to form a net, with meshes of 4, 5, or 6 sides. DILL.

Ditches and pools about Hounslow.

A. May—Oct.

***** *Threads hairy.*

sponge **CONFER'VA** *spongio'sa*. Threads equal, somewhat forked. Little branches very short, undivided, tiled on all sides. HUDS. 596.

H. ox. xv. 9. row 2. 6.

Shoots 4 inches long, growing in a circular form. Branches few, tough, black, wholly covered with greenish short fibres. *H. ox.* p. 650. 6.

Rocks and stones in the sea.

P. Jan.—Dec.

horse-hair **CONFER'VA** *equisetifolia*. Knee-jointed, branched. Branches awl-shaped. Little branches forked, between whorled and tiled. LIGHTF. 984.—Very much branched. Branches pointed. Little branches whorled, tiled, forked. HUDS. 603.

H. ox. xv. 9. row 2. 7.

Size of a packthread, 3 or 4 inches long; red. Stem branched. Branches generally alternate, taper, lower ones the longest; these and their sub-divisions closely covered with whorls of short forked hairs, lying one over another. Stems, branches, and joints red, the other parts diaphanous. LIGHTF. 985.

C. imbricata. HUDF.

Rocks, stones, and Fucuses in the sea.

P. Jan.—Dec.

verticillate **CONFER'VA** *verticilla'ta*. Threads branched, knee jointed. Little branches whorled, forked, bowed in. LIGHTF. 984. HUDS. 653.

Stems many from the same root. Branches irregular, the whole covered with close whorls of fine, short, elastic, forked hairs, curving inwards. LIGHTF. 984.

Among sea rocks in basins of water left by the tides. LIGHTF.

***** *Threads beaded like a neck-lace.*

horse-tail **CONFER'VA** *fluvial'ilis*. Threads undivided, bristle-shaped, straight. Knots thicker than the threads, angular.

Dill. 7. 47.—*Vaill.* 4. 5.—*Fluk.* 193. 7, *cop. in Pet.* 106. 6.

Stems several from one common origin, 3 or 4 inches long, thickest below, with few or no branches; spaces between the knots, oblong. Smooth, dull brown purple. *DILL.*

Rivers. Near Bangor. BREWER in *Dill.* 39.—Yorkshire, Cumberland, and Westmoreland. HUDS. 597.

P. Jan.—Dec.

β HUDS.—Green, contracted at the joints.

Dill. 7. 48.

Resembling

Resembling the above, but dull green, not slippery, rather stiff, contracted at the joints. DILL.

Near Ludlow, Shropshire, at the New Bridge. DILL. 39.

CONFER'VA *a'tra*. Threads necklace-like, bristle-*bead* shaped, very much branched, brownish black. Joints globular, almost jelly-like. HUDS. 597.

Dill. 7. 46.

Spreading. *Threads* very slender, 2 inches long; knots very numerous, smaller towards the ends. DILL.

Springs and brooks. In the Isle of Man. BREWER in Dill. 39.—Near Martin, Surry. HUDS. P. May—Dec.

CONFER'VA *gelatino'sa*. Threads branched; *frog-spawn* necklace-shaped. Joints globular, jelly-like. LINN.—Threads thread-shaped. HUDS. 597.

Weis. at p. 33. t. 1.—Dill. 7. 42.

One to 3 inches long, dull reddish brown or blackish, pellucid, gelatinous, very slippery. *Branches* divided and sub-divided, formed of globules strung together like a necklace. DILL.

In springs and rivulets of pure and limpid water. In a large clear spring in Godalmin near the high road, and near Chichester, Suffex. DILL.—Between Greenwich and Woolwich. HUDS.

A. Jan.—Dec.

β HUDS.—Green.

Dill. 7. 43.—Vail. 7. 6, knots not expressed, if the plant.

Smaller than α and thinner; $\frac{1}{2}$ to $1\frac{1}{2}$ inch long; greenish. DILL.

In a brook on Enfield Chace. DILL. Spring and Summer.

γ HUDS.—Pale green.

Dill. 7. 44.

Grows on dead fibres of Fontinalis, and on the veins and nerves of dead leaves. Globules less closely set, very tender, pellucid, pale pleasant green. DILL.

In the same rivulet with β, but in places where the stream ran more rapidly. DILL.—In stagnant waters near Manchester. HARRISON in Dill.

δ HUDS.—Blue.

Dill. 7. 45.

Grows on several aquatic plants, and sometimes on stones; branched, slender, globules nearly equal in size, blue. DILL.

Small lakes or pools at the foot of the mountains near Llanberris, and in ditches in Clifton Moss, 3 miles from Manchester. DILL.

Aug.

***** *Threads jointed.*

thread **CONFER'VA** *capilla'ris*. Threads jointed, not branched; joints alternately compressed.—

Fl. dan. 771. 2.—*Dill.* 5. 25. *A.*

Threads very long, winding, entangled, not branched; joints numerous; floating in the middle of the water. Dark yellowish green; when dried whitish with dark green joints. *DILL.*

Pools and shallows where the sea water is left on the ebbing of the tide. Kent, Suffex, and Isle of Man. *DILL.* *A.* March—Oct.

β *LIGHTF.* 988.—Smaller and shorter.

Dill. 5. 25. *B.*—*H. ox.* xv. 4. row 3. 3.—*Fluk.* 84. 9.

Finer, and shorter than α , 12 to 18 inches long; not branched. *DILL.*

In fresh water. In Hackney river. *DILL.*

coralline **CONFER'VA** *coral'lina*. Threads jointed, forked. *LINN.*—Joints thicker at the end. *Huds.* 598.

Ellis in Ph. transf. lviii. f. F. at p. 426.—*Dill.* 6. 36.—(37, is *C. setacea*.)

Of a fine scarlet when fresh. *Frustrifications* in whorls at the ends of the joints. *ELLIS ib.*—Slippery, very tender, whitish, or fine red; always dividing and subdividing into forks; almost vanishes in the attempt to dry it. *DILL.*—Consists of many branches, equal in size, and breaking into sub-divisions, sometimes 5 or 6 inches high. When young it is composed of very pale green transparent fibres; as it approaches towards maturity the septa appear more distinct, the joints become more rounded, and replete with a scarlet liquor which in a short time ouses through the tender skin, but it shews its joints very distinctly even after the discharge of this liquor. A very singular instance of irritability appeared in this plant upon immersing it when quite fresh, into fresh water. After it had been in the water a few minutes, several fibres were observed to move in an horizontal direction with a quick convulsive twitch, then to stop suddenly. This they continued to do for some length of time. I repeated this experiment several times, and the same effect was produced, provided the plant was fresh. At first I attributed it to a separation of air from between the joints of the *Conferva*, but this ought to have been seen when rising up to the surface of the water. I tried the experiment in salt water, but did not observe the same effect. Major *VELLEY.*

Conferva geniculata. *Ellis ib.* p. 425.

Stones and rocks in the sea. On stones at Cockbush, on the Suffex coast, and on the Isle of Inys y moch, near Bangor. *DILL.*—Near Brighthelmstone, Suffex. *ELLIS.*

A. May—Oct.

CON-

CONFER'VA *feta'cea*. Threads jointed, forked. *setaceous*
Branches very long, bristle-shaped. Joints cylindrical.
HUDS. 599.

Dill. 6. 37.

Sometimes forked, sometimes irregularly divided, divisions more or less frequent, but I have never observed it entire. Colour reddish purple, or greenish red. *DILL.*

Stones and rocks in the sea.

A. May—Oct.

CONFER'VA *elonga'ta*. Threads jointed, branch- *pointed*
ed. Branches forked, long, bristle-shaped. Joints very
short. HUDS. *ed.* i. 484. *ed.* ii. 599.

Threads 9 inches to a foot long, of the thickness of fine packthread, smooth, brownish purple, branched at the base. Branches very long.
HUDS. *n.* 27.

Stones and rocks in the sea on the coast of Devonshire, Cornwall, Suffex, and Isle of Man.

A. April—Oct.

CONFER'VA *cilia'ta*. ELLIS *p.* 425. — Threads *fringed*
jointed, forked, with forceps at the end. Joints with a
whorl-like fringe. LIGHTF. 998.—Threads jointed, fork-
ed, the points approaching. Joints fringed at the ends.
HUDS. 599.

Ellis in Phil. Transf. vol. 57. p. 425. t. 18. f. H. h.

On the finer kinds of Fuci.

A. May—Sept.

CONFER'VA *polymor'pha*. Threads jointed, *palmated*
branches bundled. LINN.—Threads somewhat forked,
rising to the same height. HUDS. 599.

Ellis Phil. transf. vol. 57. t. 18, at p. 426.—Dill. 6. 35.—Barr.

1301, cop. in Pet. fuc. 1. 15.—Fluk. 47. 10.—Fl. dan. 395.

—Barr. 1290. 1 and 2.

Not so long as the other species but more bearded; with numerous branches rising from the base which are very much branched. Flowers and fruit growing on distinct plants. LINN.—Capsules transparent. Seed readily observable if examined in water with a microscope. Barren Flowers in catkins. The capsules containing the seeds are placed in the forks at the termination of the branches. They are almost transparent, and when magnified the seeds are visible within them if the plant is kept moist with water. The flowers furnished with chives are collected into catkins, which stand on the terminations of the branches, not in the forks ELLIS *ib.*

On Fuci, especially on *F. nodosus*.

P. Jan.—Dec.

red CONFER'VA *ru'bra*. Threads jointed, very much branched. Branches bristle-shaped. Joints cylindrical, short. HUDS. *ed.* i. 486. *ed.* ii. 600.

Ellis in *Phil. Transf.* vol. 57. t. 18. c. E.—Dill. 6. 38.—*Pluk.* 48. 3?

Fruifications resembling a strawberry or raspberry, surrounded with a leafy empalement. ELLIS *ib.*—*Fruifications* nearly sitting, solitary, roundish, with an awl-shaped thread beneath each. HUDS. n. 31.—About 4 inches high, divided and sub-divided into numerous branches; colour reddish. DILL.

C. nodulosa. Lightf. 994.

Rocks, stones, and Fucufes in the sea.

A. May—Oct.

purple CONFER'VA *purpurascens*. Threads jointed, very much branched. Branches crowded. Joints cylindrical, long. HUDS. 600.

Dill. 7. 41.—*Pluk.* 168. 3?

Divided like a shrub; slippery, red. Divisions and sub-divisions innumerable, hair-like, short, slender, composed of minute globules. It retains water like wool. DILL.

Stones and Fuci in the sea.

A. May—Oct.

knotted CONFER'VA *nodulosa*. Threads jointed, very much branched. Joints oblong, those of the lesser branches roundish, bead-like. HUDS. 600.

R. syn. 2. 3, at p. 60, *cop. in* Dill. 7. 40.—(*Dill.* 6. 38, is *C. rubra*.)

Fruifications lateral, sitting, roundish, clustered. HUDS. n. 33.—A very elegant plant. Adheres to stones, or to small Fuci. Spreading, variously branched; globules exactly spherical, gradually smaller towards the ends of the branches; gelatinous, slippery, pellucid, red, or red purple. DILL.—Often attached to other sea plants. Branches not in any apparently regular order, but throwing out ramifications of an equal size, so that it is not easy to trace out any primary stem. It varies in size, is very much branched towards the extremities, which terminate in forks. The septa of the joints towards the summit of the branches are deeply tinged with red, and appear beautiful. Joints swollen in the lower part of the stem. Major VELLE.

On the Suffex coast between Bracklesham and Cockbush, and in the Isle of Man. DILL.

A. May—Oct.

β Threads finer; joints hardly protuberating. LIGHTF. 995.

CONFER'VA *diaph'ana*. Threads jointed, very dotted much branched. Branches forked, like forceps at the end; the partitions very red; the joints semi-transparent. **LIGHTF.** 996.

Fl. dan. 951.

The whole plant seems to the naked eye to consist only of a branched series of small red dots. **LIGHTF.** 996.

Rocky stones in basons of water left by the tides, and often adhering to Fucuses. **LIGHTF.**

CONFER'VA *pellu'cida*. Threads jointed, very pellucid much branched. Branches opposite. Joints cylindrical, very long. **HUDS.** 601.

Threads nearly 6 inches long, shining, transparent, greenish purple. *Branches* mostly 3-forked, joints equal. **HUDS.** n. 34.

Rocks and stones in the sea on the coast of Devonshire, Cornwall, Hampshire, and Suffex. **A. May—Oct.**

CONFER'VA *vagabun'da*. Threads jointed, wind-spreading ing; branches and divisions of the branches rather short. **LINN.**—Threads jointed, very much branched. Little branches very short, horizontal. **HUDS.** 601.

Dill. 5. 32.

Very much branched, the ultimate branches dividing into extremely minute divisions and sub-divisions; pale green; joints so small towards the extremities as hardly to be seen with a common eye-glass. **DILL.**—Not rooted. **LINN.** *succ.* n. 1177.—Joints hardly visible to the naked eye, especially in the finer branches.

Salt water marshes and ditches. **A. April—Oct.**

CONFER'VA *rupest'ris*. Threads jointed, very rock much branched, green. **LINN.**—Branches and little branches rather short, crowded. **HUDS.** 601.

Fl. dan. 948.—*Dill.* 5. 29.—*Pluk.* 182. 6.

Intersections of the joints hardly visible to the naked eye. **RAY** *syn.* 60. n. 19.

Rocks and stones in the sea, plentifully.

P. Jan.—Dec.

β HUDS. n. 36.

Dill. 5. 28.

Two or three inches long, dull green; threads so fine as to require an eye-glass to observe the joints. Divisions principally towards the ends, which terminate in short and extremely slender hairs. **DILL.**

On the keels of boats at Godstow. **BOEART** in *Dill.* 27.

filky CONFER'VA *seric'ea*. Threads jointed, very much branched, pretty long; green. Little branches crowded, very fine. HUDS. 601.

Dill. 5. 33.—Fl. dan. 651. 1.

Four to 8 inches high, divided into very numerous, crowded short branches, fine green in fresh, pale green in sea water. DILL.

Rocks and stones in the sea. Isle of Shepey. In the New River near London, and Hounslow Heath. P. Jan.—Dec.

cluster CONFER'VA *glomera'ta*. Threads jointed, little branches rather short, with many clefts. LINN.—Threads very much branched. Little branches very short. HUDS. 602.

Dill. 5. 31.—H. ox. xv. 4. row 3. 2.—Fl. dan. 651. 2.—Park. 1261. 1.—(Dill. 5. 28. 29, in *syft. pl.* is an error of Reichard's.)

From 4 to 12 inches long, or more; green. Branches numerous, divided and sub-divided, the mid-rib still thicker than the other parts, but the extremities ending in numerous, hair-like, short, and very fine divisions, so as to have a bushy appearance. DILL.

Brooks and springs.

A. April—Oct.

tawny CONFER'VA *ful'va*. Threads jointed, branched. Branches and lesser branches very short, tawny. HUDS. 602.

On stones and Fucuses on the Yorkshire coast. A. May—Sept.

dark CONFER'VA *nigres'cens*. Threads jointed, very much branched. Branches very long. Lesser branches somewhat bundled, very short, awl-shaped. HUDS. 602.

Threads 6 inches long, forming a turf, of a slight tinge of blackish hue, black when dry, smooth. Branches alternate. HUDS. n. 40.

Rocks and stones in the sea. Near St. Ives, Cornwall, and Exmouth, Devonshire.

P. Jan.—Dec.

brown CONFER'VA *fus'ca*. Threads jointed, very much branched. Little branches alternate, undivided. HUDS. 603.

Threads 3 to 4 inches long, blackish brown or reddish; smooth. Branches alternate, long. Little branches short, distant. Fructifications terminating and lateral, sitting, small, roundish, clustered. HUDS. n. 41.

Stones and rocks in the sea.

A. June—Oct.

CONFER'VA *fucoides*. Threads jointed, very *fucus* much branched. Lesser branches with many clefts, the lowermost bundled, bearing fruit. HUDS. 603.

Threads a foot long, smooth, of a blackish reddish hue. *Branches* alternate; *little branches* somewhat forked. *Fruifications* terminating, radiated, small. HUDS. n. 42.

Rocks, stones, and fucuses in the sea.

P. Jan.—Dec.

CONFER'VA *villosa*. Threads jointed, branched. *hairy* Joints woolly. Branches mostly undivided, distant. HUDS. 603.

Threads 6 inches long, green, semi-transparent. *Branches* long, bristle-shaped; joints woolly, or beset with very short very fine little branches in whorls. HUDS. 603.

Stones and rocks in the sea, Cornwall, but rather rare.

A. May—Sept.

CONFER'VA *coccinea*. HUDS.—Threads jointed, *scarlet* very much branched, compressed. Branches more than doubly compound, alternately winged. Fruifications on distinct plants. LIGHTF. 996.—Threads branched. Branches alternate, doubly winged; segments with many clefts. HUDS. 603.

Ellis in Phil. Trans. vol. 57. pl. 18. c. C. d. D.—Pluk. 48. 2.

—(*Ellis ib. is clearly a distinct species.*)

From 3 to 6 inches high, bright red, or purple. Conical like a fir tree in its general shape. Chives and capsules on distinct plants; the former growing on short pedicles fixed to the minute segments of the branches; the latter sitting, egg-shaped, on the sides of the extreme ramifications.

Rocks, stones, and Fuci in the sea.

P. Jan.—Dec.

CONFER'VA *penna'ta*. Threads jointed, branched. *pinnated* Branches crowded, trebly winged, segments awl-shaped. HUDS. 604.

Bushy like the tail of a fox. RAY syn. 59.

Stones and rocks in the sea, between Dover and Margate, and the Isle of Walney, Lancashire.

P. Jan.—Dec.

CONFER'VA *parasit'ica*. Threads jointed, branch- *feathered* ed. Branches doubly winged. HUDS. 604.

Threads an inch long, brown. *Branches* nearly an inch long; little wings pointed. HUDS. n. 47.

On Fucufes on the coasts of Yorkshire, Cornwall, and Dorsetshire. common.

Moor-ball CONFER'VA *ægagropila*. Threads jointed, very much branched. Branches extremely crowded, proceeding from a center and forming a round ball.—

Green; of the size of a walnut, exactly spherical, loose, not adhering to stones. *Threads* knotted, green, the knots brown, growing as close as the balls found in the stomachs of animals, no solid body in the center from whence they might be supposed to shoot. LINN. *Juec. n.* 1169.—Bright green, in balls of an irregularly spherical figure, from $1\frac{1}{2}$ to 3 inches diameter, and from their external to the internal surface about $\frac{1}{4}$ inch, most compact nearest the surface, covered on the outside with short villi. WATSON in *Phil. Transf. vol.* 47. p. 499.

In mountainous lakes. Wallingfen Moor, Yorkshire. In a lake 12 miles west of Hull, the water of which is sometimes rendered a little brackish at high tides from the Humber with which it communicates. In many places the bottom of the lake is covered with these balls like a pavement, and many are left dry on the shores every summer. Mr. DIXON in *Ph. Transf. ib.*—[In a large pool called the White Sich, on a common between Shiffnall and Newport, Shropshire. WILK.] P. Jan.—Dec.

1324. BYSSUS.

Fibres simple; uniform; like soft wool, or dust.

Ess. CHAR. *Consisting of an exceedingly simple down or powder.*

* *Thread-like.*

paper BYSSUS *Flos-a'quæ*. Threads feathered, swimming upon water.—

In the middle of summer it rises and mixes with the water which in consequence becomes greenish and turbid, hardly drinkable for several days, but every night it subsides towards the bottom. BERGIUS in *Linn. Juec. n.* 1182.—Weis says it is only a matter formed of the particles of aquatic plants dissolved by putrefaction, which being light rise to the surface of the water.—But I have reason to believe that it will prove to be a Conferva, perhaps the *C. bulbosa*. Observing a pond in the state of flowering, as the country people term it, I examined some of the water, but the particles floating in it

it were so minute that even with the assistance of a very good microscope, I could not satisfy myself as to their figure or structure. Two or 3 weeks later in the spring I found *threads*, not jointed, not branched, either straight or coiled up like a cork-screw. Some of this water kept in a glass jar, after 2 or 3 weeks more let its contents subside, and then it began to appear like a *Conferva*. The threads soon became much larger, have now a jointed appearance, but at the time of writing this are still too young to throw out branches.

WITH.

Stagnant waters.

A. May—Aug.

B Y S'S U S *phospho'rea*. Downy, violet coloured, *violet* growing on wood.—

Mich. 90. 3.—*Dill.* 1. 6.—*Mich.* 90. 8.

Colour vivid, very beautiful and delicate, much finer than the finest wool. WITH.

On the bark of trees and rotting wood.

A. Oct.—May.

B Y S'S U S *ærugino'sa*. WEIS 18.—Threads simple, *verdigris* very fine, of a verdigris colour. HUDS. 605.

Dill 1. 7.

Consists of an extremely fine woolly substance cohering together, but so fine that it is not easy to distinguish the fibres. DILL.—Its colour distinguishes it. Forms an extremely thin crust, consisting of powdery filaments extremely minute, collected into little heaps.

WEIS.

On the stems of dead fern, COLE in *Dill.*—and rotten wood. HUDS.—[On the pillars in Roslin Chapel, near Edinburgh. It had not been found before, since the time of Dillenius. Dr. J. E. SMITH.]

A. Aug.—April.

B Y S'S U S *veluti'na*. Hair-like; green. Threads *velvet* branched.—

Mich. 89. 5.—*Dill.* 1. 14.—(*Fl. dan.* 718. 2, is said in the index to be this plant, but in fasc. xii. p. 8, it is characterised as being very white.)

Spread upon the ground like a fine green carpet. Consists of filaments so fine as not to be distinguished by the naked eye, crowded and matted together, branched and not branched, extremely short but mostly upright like the pile of velvet. DILL.

On the ground in the shade, and the moist bark of trees.

A. Oct.—June.

purple **BYS'SUS** *purpu'rea*. Purple, hair-like, perennial. **LIGHTF.** 1000.—Threads simple, and branching, red. **HUDS.** 605.

Mich. 90. 2.

Very like a piece of crimson plush or velvet. Perhaps only a variety of *B. foliatus*, and when moistened yields a violet scent like that. **LIGHTFOOT.**

Byssus rubra. **HUDS.**

Stones and rocks, especially on such as are near the sea.

P. Jan.—Dec.

blackthreaded **BYS'SUS** *ni'gra*. Threads powdery, branched, black. **HUDS.** 606. **LIGHTF.** 1003.

Dill. 1. 18.—*Mich.* 90. 5, *cop. in Gled.* 1. 1, *Byssus* 2.

Threads short, very black, crowded together. **DILL.**

Rocks and larger stones in the North of England and Wales.

P. Jan.—Dec.

golden **BYS'SUS** *au'rea*. Hair-like; powdery. Fructifications scattered. Threads simple and branched, **LINN.**—and powdery. **HUDS.** 606.

Dill. 1. 16.—*Mich.* 89. 2, *cop. in Gled.* 1. *Byssus f.* 1.—*Fl. dan.*

718. 1.—*Pet. gaz.* 15. 3.

Grows in raised tufts. Threads very fine, very short, branched or entire, soft, crowded and matted together like a fleece; saffron coloured, changing to greyish when dry. **DILL.**

On the sides of caverns.

P. Jan.—Dec.

tawny **BYS'SUS** *ful'va*. Threads branched, tawny. **HUDS.** 606. **LIGHTF.** 1002.

Dill. 1. 17.

Threads stiffer and longer than in *B. aurea*, more fibrous, more scattered, retaining its colour when dry. **DILL.**

Moistish rotting wood, and tubs used to catch rain water.

P. Jan.—Dec.

saffron **BYS'SUS** *barba'ta*. Threads nearly upright, the ends branched, nearly of a length, tawny. **HUDS.** 606.

Dill. 1. 19.—*Mich.* 90. 1.—(*Pluk.* 184. 10, is regarded by *Dill.* as a species of *Hydnum*, figured by *Buxb.* 1. 56. 2.)

When young yellow, short, densely compacted, spreading wide, resembling a fleece of wool. When older it attains the height of 2 inches, grows upright, but closely crowded together, the top of each filament dividing into numerous very fine fibres so as to appear downy.

downy. It is then tawny or saffron coloured. The growth of each year is marked by a transverse line. DILL.

Rotten wood and rotten trunks of trees.

A. Jan.—Dec.

BYS'SUS *can'dida*. Threads very much branched. *white*
Little branches bundled, whitish. HUDS. 607. LIGHT-
FOOT 1003.

Dill. 1. 15.—*R. syn.* 23, at p. 477.

Substance tender, woolly, closely pressed to the surface on which it grows; white, or livid, or yellowish. From a broadish woolly and mucilaginous base arise many slender branches, spreading more in width than in height; elegantly divided and sub-divided, the extremities ending in capillary fibres or an expanded surface. DILL.

On rotten leaves, rotten wood, and half rotten leather.

A. Sept.—April.

BYS'SUS *sep'tica*. Hair-like, very soft, parallel, *flaky*
very brittle, pale. LINN.—Threads very long, very fine,
branching,* matted. HUDS. 607.

Dill. 1. 9.—*Mich.* 89. 9.

Threads like cotton, finer than those of a cobweb, grey white, not viscid; burns like touchwood. LINN.—So tender and light that the breath will disperse it, pure white, like very fine wool, threads not branched; when handled seems to dissolve into water from the moisture affixed to it. Though so very tender it remains long in its native situation. DILL.—It grows most luxuriantly on bins and wooden shelves in cellars where wine has been spilt, hanging down in form of a jelly bag, or of a cylinder with a globe at the end, to the length of a foot or more. It is easily crushed, and then seems principally to consist of water, adhering to the fingers. WITH.

Damp cellars and vaults.

P. May—Dec.

Dissolves and destroys the hardest wood. LINN.

β HUDS.—*Dill.* 1. 12.

Pale yellowish or reddish, changing to glaucous green, then red brown and at length blackish, in colour, substance and softness somewhat resembling the skin of a mouse. At first it is flat, but one layer growing upon another, it is gradually raised. It consists of fibres, too fine to be observed by the naked eye, at first upright, afterwards matted together. It generally grows in a circular form. DILL.

On wine casks.

BYS'SUS

* Micheli, cited by Linnæus, and Hudson, and Dillenius, referred to by Hudson, describe them as *not branched*. Hudson gives two synonyms from Ray. The first appears to be the plant of Mich. and Dill. the second, which is described as *ramosissimus* seems to be what fell under Mr. Hudson's immediate inspection. Mr. Woodward.

bristle BYSSUS *crypta'rum*. Hair-like; perennial; ash-coloured; tough.—

Dill. 1. 20.

Threads $\frac{1}{2}$ inch long, thick as a hair, dirty white, brittle, not branched, crowded, diverging from a centre. DILL.

On the sides of caverns in limestone rocks, and on plaistered walls in vaults. P. Jan.—Dec.

** *Powdery*.

black-powder BYSSUS *antiquita'tis*. Powdery; black.—
Hoffm. enum. 3. 5, right hand half. — (Dill. 1. 18, cited in Linnae mant. 510, is *B. nigra*, as is the *B. antiquitatis* of Weis.)

Black, resembling irregular dots of ink made with a pen, solitary or confluent, very black when wet, greyish black when dry. When magnified they appear like ill-formed warts, crowded together. HOFFMAN.

Old walls, rocks, and large stones, common. P. Jan.—Dec.

stone BYSSUS *saxat'ilis*. Powdery; ash-coloured; covering the surface of rocks.—

It will grow upon the barest rocks and stones.—Hoffman thinks this differs from the preceding in age only. It is found on rocks and stones of every kind which have been long exposed to the air, giving them a greyish colour through the whole year, but in itself so minute as to be hardly distinguishable. LINN.

Limestone rocks and stones in Westmoreland, Cumberland, Yorkshire, and Derbyshire. P. Jan.—Dec.

red BYSSUS *Jolithus*. Powdery, blood-coloured, growing on stones.—

Mich. 89. 3.—Fl. dan. 899. 1.

Threads nearly conical, on a very thin, mealy, saffron-coloured crust, which when rubbed stains the hands of a saffron-colour. It has a very strong scent of violets, especially after rain. LINN. *fuec. n.* 1178.—Crust very red when young, when old, yellowish green. *Threads* in its young state hardly discernible. HALLER.

Rocks and stones of quartz in moist shady places. P. Jan.—Dec.

green BYSSUS *botryoi'des*. Powdery; green.—

Hoffm. enum. 1. 2.—Dill. 1. 5.—Fl. dan. 899. 3.

Consists of dark green globules crowded together, the size of tobacco seed, appearing somewhat gelatinous in the microscope. DILL.—Covering the earth, or stones with an intense green colour, often with a cast of yellow, cracking when dry into irregular polygons. Globules when magnified, semi-pellucid, sprinkled with a yellowish powder.

powder. When old, the whole crust changes to a rude gelatinous mass. HOFFMAN. enum. 6.

Bark of trees, on walls, and on moist and shady ground.

P. Jan.—Dec.

BYS'SUS *candela'ris*. Powdery; yellow; growing yellow upon wood.—

Hoffm. 1. 4.—Dill. 1. 4.—Fl. dan. 899. 2.

Forming a very thin and wide spreading coat on the substances on which it grows; yellow or brimstone coloured; on rocks thicker and of a lemon colour. The microscope shews it to consist of roundish or oval globules, single or in clusters, somewhat hairy, falling into a very fine deep yellow powder. Its colour sometimes changes to tawny or greenish. HOFFMAN enum. 3.—It has been observed to continue on the same spot, and apparently in the same state, for several years.

Old pales, bark of trees, rocks, and walls, in all parts of the world.

A. Sept.—June.

BYS'SUS *inca'na* Powdery; hoary, like scattered mealy meal.—

Dill. 1. 3.—Hoffman. enum. 1. 6.

It has the appearance of a very small crustaceous Lichen. LINN. *succ. n.* 1188.—Even through an eye-glass it appears only as a shapeless powder of a greyish white colour, sometimes intermixed with green and yellow. DILL.—When magnified it appears to consist of particles of different figures, egg-shaped, oblong, compressed, open at the top, pouring out a reddish powder. From these arise other larger particles, folded at the margin, sending out numerous oblong corpufcles, rising up and spreading, turned back at the edge and throwing out a yellow meal. HOFFM. enum. 8.

Gravelly soil on the sides of ditches, near high roads, on decayed moss and wet trunks of trees in very shady situations. A. Oct.—June.

BYS'SUS *lac'tea*. Between powdery and crustaceous; white-wash very white.—

Hoffm. enum. 1. 3.—Dill. 1. 2.—Fl. dan. 840. 4.

Very nearly allied to *Lichen corallinus*. HUDS. n. 19.—Follows the figure of the plants on which it grows, giving them the appearance of having been white-washed. DILL.—Crust thin, white, brittle, when on moss; thick, soft, mealy, when on bark. Under the microscope appears to consist of heaps of spherical globules sticking together, of a greyish colour, and dusted with a white powder; When wet, it is often greenish, and when rubbed between the fingers has an unpleasant smell. HOFFMAN enum. 7.

On

On old decayed mosses and small branches of heath. Wales and North of England and Scotland.

P. Jan.—Dec.

F U N ' G I. Fungusses.

M E R U ' L I U S. (HALLER.)

ESS. CHAR. PILEUS with gills or veins underneath, of the same substance with the rest of the plant.*

* *With a stem.*

powdery * M E R U ' L I U S *purpureus*. Stem funnel-shaped, hollow, expanding at the top like a hollow pileus. Gill-like veins branched, purple.—

Fl. dan. 384.—*Schæff.* 165. 166.—*Bolt.* 103.—*Bull.* 150.
—*Vaill.* xiii. 2. 3.

Plant hollow, gradually enlarging upwards, greatly expanded at the top; border scolloped, turned back, 2 to 3 inches high, $1\frac{1}{2}$ diameter at the top. *Inner surface* dark dirty brown, smooth like velum. *Outer surface* decorated with rising branchy veins, covered with a bloomy down or powder. Substance tough and elastic. *BOLT.*

Peziza cornucopioides. BOLTON. BULLIARD. OEDER.—Elvela cornucopia. SCHÆFFER.

Grows single or in clusters, in dry woods.

funnel shaped * M E R U ' L I U S *infundibuliformis*. (*BOLT.*)—Stem funnel-shaped, hollow, expanding at the top like a hollow pileus. Gill-like veins branched, silvery grey.—

Bolt. 34.—*Bull.* 208. 465. 2, differ but little.—(Not *Bull.* 473, nor *Battar.* 23. c.—*Vaill.* xi. 10, is *M. Cantharellus*.)

Stem about 2 inches from the root to the gills often flattened, or fluted; hollow quite from the root, and running insensibly into the pileus, as the tube of a *Convolvulus* does into its border. *Gills* branched like nerves, of the same substance with the plant. The whole plant is tough, elastic, of a greyish mouse-colour. *BOLT.*

Ag. infundi buliformis. BOLT.—Ag. cornucopioides. BULLIARD.

In Lee-bank-Shroggs near Halifax, and several other places. *BOLT.*

October, 1786.

* Gills thick, not different from the substance of the plant. LINN.

* *MERU'LIUS cornucopioi'des.* (BOLT.)—Stem *cornucopia* twisted. Pileus lobed. Gills decurrent, distant, 3 or 4 in a set.—

Bolt. 8. (Not Schæff. 9, nor yet 243, though that seems to be a *Merulius*.
Not Battar. 18. H. nor 20. B.)

About 5 or 6 inches high; stems 4 or 5 from the same root, near $\frac{1}{2}$ inch diameter. Pileus 3 inches over, thin, tough, split into segments, waved and curled at the edge. The whole plant tough, elastic, leathery, of a dead buffy brown or cinnamon colour. BOLT.

Mr. Bulliard has figured what he has called *Agaricus cornucopioides*, see pl. 208, different from the above though of a dead brown colour, but the gills are branched, and the hollow of the pileus extends down to the root, so that there is properly no stem, or if you had rather, say no pileus, the expansion of the hollow stem at its top supplying the place of a pileus, and bearing the Gill-like veins on its outer side. This plant seems decidedly a *Merulius*.

Shady woods about Halifax, not plentiful. In a little wood near Brakenbed farm, in Ovenden. Sept. 3d, 1787.

* *MERU'LIUS squam'ula.* Stem bristle-shaped. *minute* Pileus whitish, gently convex. Gills a few plaits.—

Batsch. 84.

Stem reddish brown, slender as a bristle, very tender. Pileus dirty yellow white, gently convex. Gills a few imperfect plaits. Hardly 1-10th of an inch in height, and slender in proportion. BATSCH.

Found by Batsch in the Autumn, affixed to a dead leaf of the Poplar. Communicated to me by Mr. Relhan, who found it in Madingly Wood.

MERU'LIUS Cantharel'lus. Stem solid, often *Chanterelle* compressed. Gills decurrent, branched.—anastomosing.

Bull. 62.—Bolt. 62.—Batsch 120.—Schæff. 82—206.—J. B. iii.

832.—Fl. dan. 264.—Vaill. xi. 9. 10. 11. 14. 15.—Battar. 14.

A. B. C.—Batsch. 37.—Ger. 1384. 2.—Trag. 940.—Chuf. ii. 270. 2, the bottom of the page.

GILLS decurrent, fleshy, branched, anastomosing. Substance the same as that of the stem and the pileus; very different from the gills of *Agarics*. In the microscope they appear covered with very minute granulated particles.

PILEUS concave, curled at the edge, often very irregular, 1 to 3 inches over. Flesh spongy, whitish.

STEM solid, tapering downwards, often compressed, and then rarely central; 1 to 2 inches high, $\frac{1}{4}$ to $\frac{3}{4}$ of an inch in diameter.

OBS. Whole plant yellow as the yolk of an egg. It does not soon rot and decay as the Agarics do, nor is it much liable to the attacks of insects. It is very apt to be sportive and monstrous in its growth, as may be seen in the following figures, Batsch 34, fan-shaped, Vaill. 12. 13, very much curled, &c.

Pileus turban-shaped, flattish, edge mostly bent in. *Gills* deep yellow, short, naked. LINN.—Colour mostly pale yellow, sometimes deep yellow and even saffron coloured. RAY syn. 2. n. 5.—It is remarkable that this plant, which universally takes the lead in the genus *Agaricus*, most certainly **does not** belong to that genus; having no regular gills, but only projecting veins variously branched and anastomosing, but of the same substance as the pileus; they much resemble the veins of the *Peziza cornucopioides* and *P. acetabulum*. The mode in which this plant discharges its seed does not appear to be known. It seems to approach nearer to an *Helvella* than to an *Agaric*. Perhaps this plant, the *Ag. infundibuliformis* of Bolton, (which seems to be *Ag. cornucopioides* of Bulliard,) *Ag. candidus* of Hudson, and the 2 *Pezizæ* above-mentioned, ought to form a new genus. Mr. WOODWARD.—*Pileus* hollow, undulated and fringed at the edge; stem short, solid; gills thick, branching. It is remarkable in every respect; its bright yellow colour, venose gills, and particularly for its grateful smell, like ripe Apricots, which it preserves in decay. Mr. STACKHOUSE.—The reticulation of the gills not represented in Schæff. 82 and 206, to which plates our authors refer. Major VELLE. — Let me observe here once for all, that the plates of Schæffer seldom give an accurate representation of the gills.

Agaricus Cantharellus. LINN.

[Earsham Wood, Suffolk. Mr. WOODWARD.—Woolhope Woods, and Coplar Hill, Herefordshire. Mr. STACKHOUSE.—Single or in clusters: Red Rock plantation and on the South-west side of the large pool, Edgbaston, in dry soil towards the outside of the woods or where the trees are thin.]

July—Sept.

VAR. 1. Gills branched, but not anastomosing. Pileus nearly flat.

Bull. 505. 1.—Batsch 37.

Grows with the preceding. The whole plant more regular in the growth. Mr. Bulliard has figured another variety with a black stem, pl. 505. f. 2, but I have not yet heard of its being found here.

The lovers of Mushrooms may eat this with safety, but it is more tough and less highly flavoured than either the *Ag. orcadæ*, or *Ag. campestris*.

trumpet * MERU'L IUS *tubæformis*. Stem cylindrical. Pileus funnel-shaped. —

Bolt.

Bolt. 106.

Stem cylindrical, $\frac{1}{2}$ inch high, thickness of a pin, yellow. Pileus funnel-shaped, yellow, 1-10th to 1-8th of an inch over. Veins but little branched. Mr. Bolton says so little about this in his description, that I have been obliged to give the preceding circumstances chiefly from his figures, but the appearance of the middlemost of the larger drawings makes me doubtful, whether what I have taken for veins, be not only intended as shading. If so, the plant is really a *Peziza*.

Peziza tuba. BOLTON.

Moist places, and near rills of water, fixed to the putrid stems of decayed plants.

MERU'LIUS *muscig'enus*. Stem lateral, thick, short. *mos*
Pileus semi-circular, pale brown. Gills branched. —

Bull. 288, and 498. 1.

STEM solid, pale brown, tapering downwards, near $\frac{1}{4}$ of an inch high, and about half as thick.

PILEUS nearly semi-circular, smooth, pale grey brown, hollowed and uneven, sometimes marked with concentric lines, $\frac{1}{2}$ an inch over.

GILLS or Veins, branched, anastomosing, resembling those of the *M. cornucopioides*.

Ag. muscigenus. Bulliard 288.—*Helvella dimidiata*. ib. 498. 2.—See *M. membranaceus*.

This plant is found in great plenty in the months of August and September, growing on the *Hypnum fericeum*, and I never found it on any other Moss. BULLIARD.

** Without a stem.

MERU'LIUS *caryophyllæ'us*. Sitting, concave, *clove*
shaggy, scolloped and waved at the edge. Veins on the under side branched. —

Schæff. 325.—Bolt. 173.—Batsch. 121.

Upper surface, flocky or shaggy, dark clove colour, marked with concentric lines of a darker shade; border curled and scolloped, the edge fringed. Under side paler, veins branched; seems dusted over with a brown bloom, or down. Substance soft, tough, soon turning black and perishing; 1 to $1\frac{1}{2}$ inch over. BOLTON.

Helvella caryophyllæa. DICKSON.—*Elvela caryophyllæa*. SCHÆFF.
—*Ag. tristis*. BATSCH.

On the ground, in pine plantations near Bungay, Suffolk. Mr. WOODWARD.

skinny MERULIUS *membrana'ceus*. Sitting, membranaceous, smooth, lobed, curled at the edge; veins on the under side branched.—

Bolt. 177.—Bull. 498. 1.

Root longish, slender, fibrous. Plant $\frac{1}{2}$ to 1 inch over; flat, thin, flexible, tough, red brown above, yellow brown beneath; veins branched, and anastomosing. Lobes broad, deep. BOLTON.

Helvella membranacea, of Mr. Dickson, who refers to *Acta danica*, 1. p. 286. f. 1, a work not within my reach, but in his second fasciculus he cites Bulliard pl. 288, which has a thick lateral stem, sufficiently long in proportion to the size of the plant, but Mr. Dickson has described his plant as being without a stem; I should therefore suppose that his and Mr. Bolton's plant cited above are the same, and that Mr. Bulliard's, pl. 288, is a different species.

Helvella retiruga. BULLIARD.

Mossy soil; thatched houses; bogs.

1325. AGA'RICUS.

Ess. CHAR. PILEUS with gills underneath.

GILLS differing in substance from the rest of the plant; composed of two lamina.

SEEDS in the gills.

A. STEMS central.

* GILLS white.

black-stalked * AGA'RICUS *androsa'ceus*. (LINN.)—Gills white, few, 2 (or 4?) in a set. Pileus white, convex, center dimpled. Stem fuscous, shining.—Ag. stipitatus, albus, pileo plicato membranaceo, stipite nigro. LINN.

Vaill. xi. 21. 21. 22. 23.—(Bocc. mus. 143. t. 104; is also quoted by Linnæus.)

Gills extremely thin. Pileus membranaceous, plaited. Stem black, very slender. LINN.—Vaillant observes that his figures represent the largest sized specimens; that the gills are few, white, very distant from one another; the pileus white, and so thin that the gills seem to pass through it; the stems solid, smooth, rather shining, dark-coloured. VAILL. par. p. 69.—Gills few. Pileus not larger than a lentil, thin, white, brownish at the top. Stem dark red, or blackish, thin, an inch in length. SCOP. n. 1570.

* This mark is prefixed to such species and varieties as have not fallen under my own observation.

On the fallen leaves of Pines. LINN.

The existence of this as a British species is not yet sufficiently clear, as it seems our authors have very generally taken the species which I have called *Ag. collariatus*, for this plant of Linnæus; nor could they well do otherwise when inattentive to the structure; for the size, the dark stem, and the thin white pileus, occasion a very striking resemblance; but the structure tells us that they are very different. In the Linnæan plant the gills are fixed to the stem, extending down it, and the stem is solid; but in ours, the stem is hollow, and the gills are not even in contact with it, but fixed to a collar which surrounds its top, though at some distance from it.

AGARICUS *ebur'neus*. (BOLT.)—Gills white, ivory
few, very short, in pairs. Pileus white, convex. Stem
white, cylindrical.—

Bull. 118.—*Bolt.* 4, the lower figures.—*Mich.* 73. 6.

GILLS white, decurrent, not numerous, in pairs.

PILEUS white, smooth, from $\frac{1}{4}$ to $1\frac{1}{4}$ inch diameter, or more, convex, or a little conical, edges turning up when old.

STEM solid, white, from $\frac{1}{2}$ to $1\frac{1}{2}$ inch high, from the thickness of a small crow to that of a swan's quill.

This Agaric varies very much in its size, but it has in every state the appearance and the feel of ivory. In damp weather rather viscid, and in wet seasons semi-transparent.

Amongst short grass; often near trees, Edgbaston.

Oct.

AGARICUS *cyathifor'mis*, (BULL.)—Gills white, drinking glass
4 or 8 in a set. Pileus white; glass-shaped. Stem white,
nearly cylindrical.—

Bull. 248. A.—*Bolt.* 17.—*Schæff.* 207, ill coloured; f. 3, the best,

—*ib.* 39, more fleshy than our specimens.

GILLS white, narrow, very decurrent; 4 in a set in the younger, but 8 in the older specimens, from the greater extension of every other long one down the stem.

PILEUS white, fatty, 1 to 2 inches over, irregular at its edge, often tearing as it expands; flattish when young, and not always hollow as BULLIARD says. Edges are at first turned down, even though the central part be much hollowed, but at length they turn up, the whole plant in that state greatly resembling a drinking glass.

STEM solid, white, 1 to 2 inches high, thick as a swan's quill, rather thickest upwards, seldom quite central.

Pastures, Edgbaston.

Aug.

VAR. 1. Pileus and stem buff-colour.

Bull. 248. B,

T 3

Pileus

Pileus without flesh, deeply hollowed. Stem $2\frac{1}{2}$ inches high.

Woolhope; Beckbury Hill, Herefordshire, not uncommon. Aug.
Mr. STACKHOUSE.

funnel-shaped AGA'RICUS *infundibuliformis*. (BULL.)—Gills watery † white, pellucid, narrow, 4 or 3 in a set. Pileus funnel-shaped, brownish-buff. Stem brownish-buff.—

Bull. 286.—*Bolt.* 61.—*Sierbeck* 15. B. B. very like it, but the stem too short and too thick.

GILLS very decurrent, white, numerous, narrow, thin, tender, brittle, the long ones often forked.

PILEUS brown buff, thin, pellucid, tender, smooth, hollow in the center, convex and turned down at the edge; $1\frac{1}{2}$ to 3 inches over; in the small plants the edge is even, but in the larger ones very much plaited or curled.

STEM solid, brown buff, striated, disposed to twist, nearly cylindrical, white within, $1\frac{1}{2}$ to $2\frac{1}{2}$ inch high, from the thickness of a crow's to that of a swan's quill.

Vide Ag. fimbriatus.

Plantations, Edgbaston, after much rain.

July.

thick and short AGA'RICUS *obefus*. (BATSCH.)—Gills white, greatly decurrent, branching and inosculating. Pileus white, nearly flat. Stem white, very thick, short, inversely conical.—

Batsch. 216.—*Schæff.* 307; too much coloured.

GILLS white, numerous; very narrow, so decurrent as to unite the Pileus and the stem into one uniform substance. In general there is a short and a long Gill alternately, sometimes there are 4 in a set, but the long ones frequently divide into two as they approach the edge of the pileus, and moreover the branches unite one to another so as to form a kind of net-work.

PILEUS white, turning brown, smooth, at first a button, then growing flat, at length the edges rise so as to form a shallow concavity at the top, but the extreme edges still turned down. Diameter $1\frac{1}{2}$ to $1\frac{1}{2}$ inch.

STEM solid, white, widening so much upwards as to be nearly equal to the breadth of the pileus; often flattened; about $1\frac{1}{2}$ inch high. Root none but the rounded end of the stem.

Pastures amongst moss. Edgbaston.

Aug. 1790.

* VAR. 1. Pileus pale dead brown, violet coloured at the edge.

Bolt.

† By watery white, is meant, that kind of appearance which is given to white linen or paper by wetting it; the wetting diminishing the intensity of the whiteness, but increasing the transparency. The term will likewise be occasionally used to express a similar effect on other colours.

Bolt. 146.

On stumps of trees, Northowram.

Aug. 1791. BOLT.

AGA'RICUS *pisillaris*. Gills white, in pairs, *pestle* very short. Pileus whitish, convex. Stem whitish, conical, crooked.—

Batsch 62, (but a little different in the colour of the Pileus.)

GILLS white, decurrent, in pairs, hardly exceeding the 20th of an inch in length.

PILEUS whitish, uniformly convex, about $1\frac{1}{4}$ of an inch over, the edges curled inwards towards the stem.

STEM solid, whitish, $\frac{3}{4}$ inch long and $\frac{3}{4}$ diameter, thickest at bottom, bent in one or two directions.

I have never found it in any other state than that just now described.

Amongst grass and moss. Edgbaston.

26th Aug. 1791.

* AGA'RICUS *ti'grinus*. Gills yellowish white, 4 *tiger* in a set. Pileus whitish, spotted, convex, center depressed. Stem slanting, more or less spotted.—

Bull. 70.

Varies very much as to the quantity of its spots. Substance leathery. Gills decurrent. Pileus spotted or rather pencilled with reddish brown hairy scales; 2 inches over. Stem solid, white, crooked, thinnest downwards, more or less spotted like the pileus, 1 to $1\frac{1}{2}$ inch high, thick as a crow quill. BULLIARD. DICKSON. 2. p. 24.

On decayed trunks of trees, particularly on the elm. [Powick near Worcester. Pendarvis, Cornwall. Mr. STACKHOUSE.]

* AGA'RICUS *ca'feus*. Gills white, 4 in a set. *cream-cheese* Pileus pale mouse, gently convex, edge turned in. Stem cylindrical, upright.—

Bolt. 40.—Bull. 400, the same, but more coloured.—Schæff. 78.

GILLS decurrent, dead white or yellowish white, thin, numerous, dry, 4 in a set.

PILEUS pale mouse, clothly, smooth, gently convex with the edge turned in, 3 inches over.

Flesh dry, brittle, not fibrous, resembles cream-cheese.

STEM solid, white, cylindrical, upright, bulbous at the base.

This taken from Mr. Bolton, but his trivial name *mollis*, must be rejected, as it has before been applied to a different species, and particularly to one of Schæffer's, which is also a British plant.

Schæffer's name (*albellus*) is also pre-occupied by a different species. Vide Scop. n. 1462.

Dry woods and pastures about Halifax. Mr. BOLTON.

* VAR.

* VAR. 1. Gills snow white. Stem very large, with a large ring.
Mr. STACKHOUSE.

Of a very soft and pulpy consistence.

Near Bath. Mr. STACKHOUSE.

Listers AGA'RICUS *Liste'ri*. Gills whitish, mostly uniform, very numerous and narrow. Pileus white, smooth, irregular, flattish, depressed in the centre. Stem white, eccentric, cylindrical.—

Bull. 200.—Bolt. 21.

GILLS decurrent, white, or yellowish white, numerous, uniform, or in pairs, very fine, close set like the teeth of an ivory comb, not 1-10th of an inch broad.

PILEUS white, smooth, irregular, flattish, but more or less depressed; edge turned down; from 3 to 7 inches over; generally set sloping on the stem.

STEM solid, whitish, 2 inches high and 1 in diameter, generally eccentric, blunt and rounded at the bottom. Sometimes 3 or 4 grow together, very large, even 10 inches diameter, remaining a long time in dry seasons. Milky juice very biting, with a bitterish taste.

Haughwood, Capler Hill, Woolhope, Herefordshire. Specimen and observations from Mr. STACKHOUSE.

This, and its varieties, have very generally been supposed by the English botanists to be the *Ag. piperatus*, LINN.—who led them into the error, by quoting Haller and Bauhine for synonyms to his *piperatus*; synonyms which undoubtedly belong to the species described by Dr. Lister, but by no means according with the Swedish plant. To avoid perpetuating this confusion, I have rejected the trivial name *piperatus*, though applied to it by J. Bauhine, who seems first to have given a good description of it. *J. B. hist.* iii. p. 825. cap. 6. Dr. Lister seems first to have found it in England. His description, partly copied from J. Bauhine, may be found in *Ray cat.* p. 123, and also in *Ray hist.* p. 83. c. 9. The Doctor observes that the juice is mostly poured out by the external parts of the plant, that it did not change the surface of polished steel, that it became green when dried, but still retaining its acrid biting quality. He observed too that the plant was much eaten by insects and snails. *RAY syn.* 4. 14.

VAR. 1. Gills connected by transverse threads. Pileus light drab colour, very viscid. Stem tapering downwards.

GILLS decurrent, white, yellowish with age, irregular, much broader than in the preceding.

PILEUS light brown or drab colour, hollowed in the center, 4 or 5 inches over,

STEM solid, white, inversely conical, $1\frac{1}{2}$ inch long, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter; generally eccentric.

The juice white like milk, hot and acrid, but not properly peppery.

Under large beech trees, plantations, Edgbaston. Oct.

VAR. 2. Gills yellow white, numerous, and narrow. Pileus white, oblique.

Battar. 17. A.—Schæff. 83.—Batsch. 59.

In woods, Woolhope, Herefordshire. Mr. STACKHOUSE.

VAR. 3. Gills white, Pileus buff, with yellow brown concentric circles.

Bull. 104.

Gills decurrent, white, very numerous, mostly 4 in a set. Pileus hollow in the center, edge turned down; 3 to 4 inches over. Stem white, tapering downwards, rounded at the end, 1 to $1\frac{1}{2}$ inch high, and the same in diameter. Juice milky, abundant, very acrid.

BULLIARD.—Gills white, in age turning faintly yellow. Pileus when young cushion-shaped, and the margin rolled in, but even then it is always depressed in the center; surface somewhat velvety, strongly marked with concentric lines of a fulvous colour. Mr. WOODWARD.

In groves, or amongst bushes on a clayey soil near Bungay. Mr. WOODWARD.

Besides the above, I shall introduce to the acquaintance of the reader several other Agarics with milky juice, some mild, some acrid, which inadvertently, or as it would seem merely from the resemblance of the juice, have been supposed to belong to one or other of the two lactescent species of Linnæus.

AGA'RICUS *umbraculum*. (BATSCH.)—Gills dirty *umbrella* white, 4 in a set. Pileus cool brown, conical, scored. Stem cool brown, cylindrical, cottony at the bottom.—

Batsch. 4.

GILLS a little decurrent, dirty white, 4 in a set, not numerous.

PILEUS pale brown, conical, scored, cracking at the edge, but otherwise tough and strong; 1 inch from the edge to the apex, and as much in diameter at the base.

STEM solid, pale brown, cylindrical, $3\frac{1}{2}$ inches high, thick as a thin goose quill, covered with a white cottony substance at the base.

This is an elegant plant, and with us a rare one.

In the hollow of a stump; Church Lane, Edgbaston.

25th September, 1791.

AGA'RICUS *agrestis*. Gills brownish white, irregular, but mostly 4 in a set. Pileus pale brown, darkest in the center, convex. Stem pale brown, smooth, cylindrical.—

GILLS

GILLS decurrent, brownish white, rather numerous, mostly 4 in a set, but the long Gills are sometimes in pairs, and united towards the stem, in which case the smaller Gills are either excluded, or else they open wide towards the rim, and then some small ones are irregularly placed between them.

PILEUS pale brown, darker in the center, smooth, very thin; regularly convex, but the edge a little expanding, and extending rather beyond the Gills, 1 inch over.

STEM solid, pale brown, cylindrical, smooth, from 2 to 3 inches high; thick as a crow quill.

Whole plant watery, and semi-transparent in wet weather.

Pastures. Edgbaston Park.

7th Nov. 1790.

bossed AGA'RICUS *umbona'tus*. Gills white, 4 in a set, long ones about 17. Pileus brownish, gently convex, central boss dark brown, much elevated. Stem pale brown, cylindrical, firm, crooked.—

GILLS a little decurrent, white, brittle, 4 in a set, long ones about 17, extending beyond the edge of the pileus.

PILEUS semi-transparent, yellowish brown, with a darker coloured knob or boss raised high in the center; $\frac{1}{2}$ inch diameter.

STEM solid, semi-transparent yellowish brown, slimy, firm, $1\frac{1}{2}$ inch high, cylindrical, thick as a crow quill, crooked.

Edgbaston Park.

7th Nov. 1790.

parchment AGA'RICUS *membrana'ceus*. (VAHL.)—Gills brownish white, 4 in a set, the short Gills unusually long. Pileus pale chestnut, hollow, but bossed in the center. Stem pale brown; root bulbous.—

Fl. dan. 1012.

GILLS decurrent, brownish white, 4 in a set, the smaller series unusually long.

PILEUS pale reddish brown, glass-shaped, but with a small rising in the center, thin and skinny, irregular, with one or more large notches in the edge, 2 to 5 inches over.

STEM solid, spongy, pale brown, nearly cylindrical, 2 to 4 inches high, from $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter; flesh, or rather pith, with several irregular perforations.

Root an oval bulb formed by an enlargement of the stem.

In fir plantations, Edgbaston.

Oct. 1790.

hooded AGA'RICUS *vela'tus*. Gills dirty watery white, not numerous, 4 in a set. Pileus pinky brown, nearly flat, edge turned down. Stem cylindrical, buff, with brown scales.—

Schaff.

Schæff. 36.

GILLS decurrent, brownish watery white, strong and fleshy, not numerous, four in a set.

PILEUS pale pinky brown, from $2\frac{1}{2}$ to 4 inches over, nearly flat, but a little bossed in the center, and the edge turned down. When full grown quite flat, the central projection disappearing; and when old quite funnel-shaped. Surface clammy when wet, fatty when dry. *Flesh* brownish white.

Curtain in the young plants composed of whitish cobweb-like, straight threads, stretched from the stem over the edge of the pileus, and leaving a permanent dark-coloured mark on the stem.

STEM solid, buff, yellow at the top, flecked with brown scurfy scales below, 3 to 4 inches high, $\frac{1}{2}$ to 1 inch diameter, nearly cylindrical, seldom quite straight.

This plant ought to have retained Schæffer's trivial name of *glutinosus*, as he first figured and described it, but Mr. Curtis having given that name to another more common English species, which he has well figured and described, I thought it better to give this an entirely new name, and a more expressive one readily occurred from the singular structure of the curtain, which is extended over the whole of the pileus in its younger state, like a veil. Mr. Dickson, who first published this as a British species, referred it to the *Ag. limacinus* of Scopoli 1471, but several reasons make me doubt of it being the same. The doubts of Schæffer too give further authority to my opinion; and Mr. Woodward, who communicated it to Mr. Dickson, tells me, on my mentioning this circumstance, that he always doubted the propriety of that reference.

Ag. limacinus. DICKS. fasc. 1. 15.

Fir plantations at Bar, Staffordshire.

Sept. 1791.

* VAR. 1. Gills branched.

Schæff. 36. 1. 2. 3. 4.

GILLS somewhat decurrent, whitish, with a mixture of ash-colour, twice and sometimes oftener branched, so that the number counted at the margin is at least four times the number counted at the stem.

PILEUS varies from ash-coloured to brown or yellowish white.

Curtain at first clear and transparent, resembling a thin bladder, entirely covering the pileus and connected with the stem, on which it leaves a spurious ring. It remains in shreds round the edge of the pileus, and at length entirely disappears. This curious kind of curtain seems peculiar to this species.

STEM brown, paler upwards, largest at the bottom.

Pine Groves at Earsham Broome, and Kirby, Norfolk. Mr. WOODWARD.

crowded AGA'RICUS *cumula'tus*. Gills white, 4 in a set. Pileus reddish brown, woolly and tufted, Stem yellow brown or olive, bulbous at the base; Ring woolly, permanent.—

Bolt. 141.—Bull. 377, but more of a red cast than our specimens.

—Bolt. 140, in a less advanced state of growth.

GILLS decurrent, white; edges reddish brown when the seeds begin to be discharged; not very numerous, 4 in a set, shortest series very short.

PILEUS reddish brown, darkest in the center, convex, from 3 to 6 inches over, woolly and tufted, edges turned in, but cracking with age and turning up. *Flesh* spongy, white, thin.

STEM solid, olive brown below, reddish brown above the ring, with whitish streaks; 4 to 6 inches high, 1-3d to $\frac{1}{2}$ inch diameter, seldom straight; thickest downwards, bulbous at the base.

Ring permanent, tough, woolly, yellowish white, turned down on the stem.

Should this in its younger state appear to be veiled by the curtain like the preceding, it may rank only as a variety of that, but I have never found it with such an appearance.

Grove; Edgbaston, on the stumps of trees which had been cut down rather below the level of the ground. They grew in prodigious quantities; in some places as many together as would have filled half a bushel.

Oct.

VAR. 1. Gills 4 or 8 in a set, by their decurrence streaking the top of the stem quite down to the ring; pileus wrinkled or plaited at the edge.

Fl. dan. 1013.—*Schæff.* 74.

This differs very little from the preceding, but from being less crowded in its growth assumes a more perfect form. By the more full expansion of the pileus some of the long gills separate from the stem, which causes the appearance of 8 in a set in those parts; and indeed in this species the extent of the decurrence of the long gills is very variable. The discharge of the seeds which tinges the edges of the gills, the ring, and the top of the stem of a rich red brown, seems always to begin in that part of the gill next to the stem. In the young and unexpanded plants or buttons the pileus is covered with a knap or frize of a brown glutinous wool, and the colour is that of an olive.

Edgbaston lanes, on sandy hedge banks.

Oct.

coral * AGA'RICUS *coralloi'des*. (Scop.)—Gills whitish, small, few. Pileus tawny red, convex, smooth. Stem whitish, thickest in the middle.—

Battar. 9. F.—*Scop. subt.* 35.

GILLS decurrent, thinly set.

PILEUS brownish, $\frac{1}{4}$ of an inch over.

STEM solid, dirty white, 2 to 3 inches high, $\frac{3}{4}$ of an inch diameter.

One root sends out several stems, and also several jagged sub-
stances, the imperfect rudiments of other stems. SCOP. BATTAR.

DICKSON fasc. 1. 16.

In hollow trees.

Oct.

AGA'RICUS *versicolor*. Gills yellow white, *changeable*
changing to dark red brown. Pileus greenish buff, scurfy,
convex, edge turned in. Stem white, to brown. Ring
permanent.—

GILLS decurrent, yellowish white, changing when old to dark
brown, 2 or 4 in a set.

PILEUS greenish buff, scurfy, most so in the center, convex, becoming
flat with age, but the edge much curled in; 1 to 4 inches over.

STEM solid, but spongy, white, changing to brown, thickest down-
ward, 2 inches high, thicker than a swan's quill. Ring perma-
nent. Root bulbous.

This is a rare species. I found it only once, and then near the
bridge in Edgbaston Park which goes over the stream that feeds the
large pool. July, 1792.

** GILLS brown.

AGA'RICUS *castaneus*. Gills yellow brown, 4 in *chestnut*
a set, but often irregular and branched. Pileus concave,
bossed in the center. Stem rich yellow brown.—

Bolt. 22.

GILLS decurrent, rich yellow brown, numerous, 4 in a set, those
of the first and second series sometimes branched.

PILEUS rich yellow brown, clammy when fresh, fatty when dry,
2 to 7 inches in diameter, concave, but bossed in the center;
edge turned down, but when large and fully expanded the whole
turned up and quite funnel-shaped. *Flesh* spongy, yellowish
white.

STEM rich yellow brown, cylindrical or tapering, $1\frac{1}{2}$ to 3 inches
high, and $\frac{1}{2}$ inch diameter.

Gills rather paler than the pileus. Stem yellowish at the base,
the colour of the gills upwards. Mr. WOODWARD.—Pileus vary-
ing from deep chocolate to chestnut; darkest in the center, with
sometimes a few scales. Stem generally tapering.

This is a very common species, growing in numerous circular
patches under shady trees.

Woods near Bath. Powick, Worcestershire. Mr. WOODWARD.
—Hedge banks, Castle-bromwich. Mr. STACKHOUSE.—Pine Grove,
Kirby,

Kirby, Norfolk. Edgbaston, under large oaks and beeches.

Aug.—Dec.

VAR. 1. Gills 4 to 8 in a fet. Pileus concave, dotted.

Schæff. 252.

GILLS decurrent, paler than the stem, numerous, 2 long gills often united near the stem, and then they include only one intermediate gill, with a little tooth on each side.

PILEUS from full cinnamon to chefnut, dotted with little pits, the central part concave, and the edge turning up with age.

STEM solid, brown cinnamon, crooked, thinnest downwards, $\frac{3}{4}$ to 2 inches high and 3-8ths diameter.

Fl. dan. 1011, (*cyathiformis*) is by M. VAHL referred to the above species of Schæffer, but the Danish plant is described as having a woolly pileus, and is figured with a *hollow* stem, whereas Schæffer expressly says that his plant has a *solid* stem.

Pastures, Edgbaston.

Oct.

bronze AGA'RICUS *rubescens*. (SCHÆFFER.)—Gills reddish brown, 8 in a fet. Pileus reddish brown, with darker concentric circles.—

Schæff. 73.

GILLS decurrent, reddish brown, 8 in a fet.

PILEUS reddish brown, marked with concentric circles of a darker shade; in general flat, but hollow in the center, and wvaed and bent down at the edge, clothly to the touch, $1\frac{1}{2}$ to 3 inches diameter; sloping.

STEM solid, reddish, brown, whitish within, 1 inch long; near $\frac{1}{2}$ inch diameter, nearly cylindrical, but rather thinner downwards, generally excentric.

Juice white like milk, hot and acrid like that of Mezereon or cuckowpint.

Plantations, and pool dam, Edgbaston.

15th Sept. 1791.

whey AGA'RICUS *ferofus*. Gills pale brown, numerous, 4 in a fet. Pileus cinnamon colour, flecked, gently convex but sinking in the middle. Stem cinnamon, smooth, crooked. Juice like whey.—

Bull. 54, nearly resembles it, but the pileus does not sink in the middle.

GILLS a little dcurrent, brown, numerous, in fours, regular.

PILEUS cinnamon colour, fleckered with darker shades; gently convex but a little hollowed in the middle, darkest in the hollow; from 1 to 2 inches diameter.

STEM solid, smooth, cinnamon coloured, central, crooked, cylindrical, 2 inches high, and 3-8ths diameter.

Juice

Juice dilutely milky, not acrid.

Pastures, Edgbaston.

Oct. 1790.

AGA'RICUS *lactifluus*. (LINN.)—Gills red brown, *milky*
Pileus dark red brown. Stem buffy. Juice white, milky,
mild.—

Schæff. 5.

GILLS decurrent, red brown, but paler than the pileus.

PILEUS rich red brown, nearly flat, 4 inches over.

STEM solid, reddish buff; $2\frac{1}{2}$ inches high, $\frac{3}{4}$ inch diameter. Mr.

STACKHOUSE.

Ag. stipitatus. Pileo plano carneo lactefcente, lamellis rufis,
stipite, longo carneo. LINN. Sp. Pl.

STEM 1 to 4 inches high, reddish, somewhat thickest and brown at
the base, paler and smaller upwards.

PILEUS of a deeper colour, from 1 to 4 inches broad, generally
smooth, flattish but depressed in the center, and bent in at the
margin; sometimes marked with one or two circles near the
edge.

GILLS paler than the pileus; long ones sometimes branched at the
base. The juice white, at first mild, but leaving a pungent taste
on the tongue. Mr. WOODWARD.

Specimens sent me from Woolhope, Herefordshire, by Mr.
STACKHOUSE.—Pine groves, near Bungay, Suffolk. Mr. WOODW.

VAR. 1. Pileus funnel-shaped; stem rich red brown, thinner down-
wards, with yellow bristly hairs at the base.

GILLS decurrent, red brown, numerous, 8 in a set, long ones some-
times cloven, paler than the pileus; brittle.

PILEUS red brown, funnel-shaped, 2 to $3\frac{1}{2}$ inches over. *Flesh*
spongy, thin, reddish white.

STEM solid, rich red brown, redder than the pileus, tapering down-
wards, redder at the base, and set with bristly hairs, often crooked
and eccentric, 2 inches high, $\frac{3}{10}$ ths diameter.

The whole plant, but especially the gills, abounding with white
milky juice, at first mild, but at length leaving a slight pungency in
the throat.

Edgbaston Park, under the large clump of beeches.

July.

AGA'RICUS *pilosus*. (SCHÆFF.)—Gills brown, 4 in *tufted*
2 fet. Pileus and stem yellowish, tufted with darker hair.—

Schæff. 80.—Fl. dan. 491.

GILLS decurrent, brownish, numerous, broad.

PILEUS yellowish, convex, flattish, or bossed, tufted with hairs. *Flesh*
tough.

STEM

STEM solid, cylindrical, twisted, tapering at bottom, yellow, but less so than the pileus, rough with dark hairs, $1\frac{1}{2}$ to 4 inches long, thick as a finger, firm, white within, above the ring naked. *Ring* permanent. *Curtain* fugacious. *Root* closely compressed and tapering. In those clusters which I gathered, though the stems were large, yet they tapered so much that the junction of them all was not equal to the size of a single stem. The young ones come out straw coloured. Specimens, drawing and description, from Mr. STACKHOUSE.

On stumps of pear and oak. (Vide *Ag. floccosus*.)

VAR. 1. Pileus tawny, uniformly shaggy with hair. Stem white. *Curtain* white. *Ring* permanent.

Bolt. 42.

I am indebted to Mr. Stackhouse for a specimen of this, and also for the following remarks: It is a fasciculated Agaric growing on trees. The part of the stem above the ring quite smooth. *Pileus* clothly and hairy, or regularly woolly all over. I think it a variety of *Ag. pilosus*.

Woolhope, Herefordshire.

Sept. 1791. Mr. STACKHOUSE.

tender AGA'RICUS *delicat'ulus*. Gills brown cinnamon, claws white; 4 or 8 in a set. Pileus buffy yellow, flattish. Stem cylindrical, yellow.—

Fl. dan. 1008. 2, will give some idea of it, putting out of the question the hollow stem, and the too great regularity of the gills.

GILLS a little decurrent, rich cinnamon, white where fixed to the stem, 4 in a set, 8 in the larger plants; the long gills very broad, tearing from the stem when the pileus is expanded.

PILEUS buffy yellow, thin at the edge, nearly flat, but concave in the center when old.

STEM solid, yellow, shining, 3 inches high, thick as a raven or goose quill, cylindrical.

Ruffle turned down on the stem, fugacious.

The whole plant very brittle, tender, and juicy, a very small pressure destroying the colours, and giving them a watery dark appearance

Edgbaston, by the stews, rare.

20th May, 1792.

VAR. 1. Gills brown, mottled, edges and claws white; 4 in a set. Pileus buff. Stem yellowish white.

GILLS decurrent, brown, mottled, not very numerous, 4 in a set. The edge of the gills, and the portion of the long ones next to and decurrent on the stem, white.

PILEUS buff-colour, flattish, with a small pointed central boss, edge turned down, surface leathery, 1 to $1\frac{1}{2}$ inch over. *Flesh* white.

STEM

STEM solid, buffy white, glossy, variously bent, cylindrical, 3 inches high, thick as a raven quill, suddenly thickening at the top at its connection with the pileus. *Flesh* yellowish, but quite white in the center.

Curtain whitish, fugacious, sometimes leaving fragments on the edge of the pileus and on the stem.

Pastures, Edgbaston.

20th May, 1792.

*** GILLS red.

AGA'RICUS *rosellus*. (BATSCH.)—Gills pinky red, *pinky* few, 4 to 8 in a set. Pileus brown red; *flesh* red. Stem pinky red.—

Batsch. 99.

GILLS decurrent, deep pinky red, not numerous, 4 in a set, but sometimes 8 from the intervention of other little teeth.

PILEUS brown red, rather scurfy, convex, but a little hollowed in the center; $\frac{3}{4}$ to $1\frac{1}{4}$ inch diameter. *Flesh* thin, red.

STEM solid, pinky red, cylindrical, but thickening at the top, thick as a crow quill, $1\frac{1}{2}$ to 2 inches long. In a section of it, the central part is less compact and paler than the outside.

This elegant little Agaric is seldom found in full perfection, as it soon shrivels and loses its brilliant colours, but it does not rot.

Amongst old Alder stumps, in the Alder plantation, Edgbaston.

2d Oct. 1791.

AGA'RICUS *jecorinus*. Gills pinky liver colour, *liver colour'd* numerous, in pairs. Pileus pinky brown, fatty, flat. Stem pinky above, yellowish below, tapering downwards—

GILLS decurrent, rich pinky liver colour, with age blacker at the edges and deep tan-leather colour at the sides; in pairs, the small Gill varying in size, but very small in proportion to the large one; the large Gill sometimes forked.

PILEUS pinky brown, convex and bossed when young, flat and more liver coloured when older, but the edge always turned in; surface smooth, shining, fatty, from 3 to 5 inches over. *Flesh* pinky white.

STEM solid, spongy, pinky brown upwards, yellow brown below, tapering downwards, rarely straight, 2 to 3 inches high, $\frac{1}{2}$ to 1 inch diameter. *Flesh* fine rhubarb yellow.

From some appearances which took place in the pickle in which it was preserved, I suspect that in favourable circumstance it will be found to contain a milky juice.

Pine plantations at Bar, near Walsall, Staffordshire.

20th July, 1792.

*saffron
juiced* AGARICUS *deliciosus*. (LINN.)—Gills flame coloured, narrow, regularly branched. Pileus rich red brown, flesh orange colour. Stem orange, tapering downwards.—

Ag. stipitatus, pileo testaceo, fucco lutescente. LINN.

GILLS decurrent, bright aurora or flame coloured, very narrow, regularly branched in this manner—at some distance from the stem each long gill divides into 2, each of these divisions again divides into 2, and lastly each of these sub-divisions before reaching the edge of the pileus divides again; the ends of the last branchings next to the edge of the pileus thicker than the other parts.

PILEUS rich red brown, nearly flat, but the center a little hollowed, and the edge considerably rolled in towards the stem; from $1\frac{1}{2}$ to 3 inches over. *Flesh* pale orange.

STEM solid, orange coloured, tapering downwards, 1 to 2 inches high, and $\frac{1}{4}$ to $\frac{3}{8}$ ths inch diameter.

Juice rich yellow. It soon shrivels and feels remarkably light. The specimens from which the above description was taken having been carried some miles in an open basket, gives me reason to apprehend that it is not so exact as I could wish. I find no figure exactly corresponding with this beautiful and remarkable plant, but on the authority of Mr. Hudson, and Mr. Relhan, the *deliciosus* of Schæffer must be inserted as a variety.

In fir plantations on barren hills at Bar, Staffordshire.

26th Sept.

* VAR. 1. Gills brick red, branched. Pileus brick red, marked with darker and paler concentric circles. Stem spotted. Juice saffron colour.

Schæff. 11.

Generally solitary, fleshy, juice saffron coloured. Pileus hemispherical, depressed in the center, raised and arched towards the edge, colour of brick, with concentric circles alternately paler. Gills brick red, branched. Stem cylindrical, spotted, short, thick, somewhat hollow; without curtain or ring. SCHÆFFER.

Woods near Guilford. Aug.—Oct. Mr. HUDSON.—Dry pastures. Gogmagog Hills. Mr. RELHAN.

VAR. 2. Gills pale brick colour, four in a set. Pileus pale brick colour. Juice golden yellow.

Bolt. 144.

Stem cylindrical, solid, hollow with age. No curtain. Gills narrow, brittle. Pileus at first convex, becoming horizontal, and lastly funnel-shaped, marked with darker concentric circles, but these are not always equally distinct, and in some plants hardly perceptible. Every part of it when wounded affords a copious discharge of yellow acrid juice. BOLT. p. 144.

Stem

Stem solid, cylindrical, brown olive, blotched, 2 inches long, $\frac{1}{2}$ to 1 inch diameter. *Pileus* always more or less hollowed in the middle, a little woolly, from 3 to 5 inches over. Specimen from Mr. STACKHOUSE.

AGA'RICUS *piperatus*. (LINN.) — Gills pale, *pepper* pinky red, numerous, in pairs. *Pileus* dirty yellow white, woolly, depressed in the center. *Stem* pale yellow.—

Bull. Ag. necator, with no number to the plate; but the tints of the *pileus* more red than our plant, and the gills a less pleasant colour.

GILLS decurrent, a beautiful blush colour, numerous, in pairs, broader than those of the *Ag. Listeri*.

PILEUS dirty brownish red, or yellowish white, woolly, flattish, but the edge turned down, and the center depressed; 3 inches over. *Flesh* white.

STEM solid, pale yellow, not central, nearly cylindrical, $1\frac{1}{2}$ to 2 inches high, and $\frac{1}{2}$ inch diameter. *Juice* white, milky, very hot and biting.

Ag. stipitatus, *pileo planiusculo lactefcente*, *marginē deflexo*, *lamellis incarnato pallidis*.

β *Pileus convexo-depressus*, *carnosus*, *lactescens*, *marginē inflexo*, *tomentoso*. *Lamellæ pallidæ*. *Stipes nudus*, *fistulosus*, *pallidus*. *Fl. Suec.* 1195.—Schæff. 12. seems a variety with a yellow juice; and *Bull.* 529. 2. another variety.

Specimen, drawing, and description, sent to me by Mr. STACKHOUSE, who rightly conjectured it to be the real *Ag. piperatus* of LINN.

Haughwood, near Woolhope, Herefordshire. Mr. STACKHOUSE.

**** GILLS buff.

AGA'RICUS *dulcis*. (HUDS.)—Gills buff, numerous, *mild* 8 in a set. *Pileus* dark buff. *Stem* buff. *Juice* milky, mild.—

Bull. 224.—*Bolt.* 3.

GILLS decurrent, buff, numerous, 8 in a set, the little teeth or smallest Gills very irregular in size.

PILEUS concave, dark buff approaching to orange, $1\frac{1}{2}$ to 2 inches over. (Our specimens not bossed in the center as in some of Bulliard's figures.)

STEM solid, irregularly hollow with age, buff colour, 2 inches high, rather thicker than a swan's quill.

Juice white, milky, not acrid, or peppery. *Ray Syn.* 4. 15.

Plantations, Edgbaston.

Oct.

VAR. 1. Gills in fours, or eights, connected by short transverse white ligaments.

Edgbaston, in woods.

Nov.

VAR. 2. Gills in pairs. Stem short, eccentric. Milk white, changing to a brimstone colour.

GILLS in pairs, a very little decurrent, fleshy, broad.

PILEUS concave, reddish brown, marked obscurely with concentric circles.

STEM solid, short, thick, not central.

Milk white, mild, changing to a pale yellow when exposed to the air. Mr. STACKHOUSE.

Woods near Woolhope, Herefordshire.

brown-sugar

AGA'RICUS *livido-rubescens*. (BATSCH.) — Gills buff, numerous, 4 in a set. Pileus mouse colour, concave, edges turned down. Stem white, thick.—

Bull. 282.—Batsch. 202.

GILLS somewhat decurrent, buff colour, semi-transparent, thick set, 4 in a set, sprinkled over with a substance like brown sugar; probably the inspissated juice.

PILEUS mouse colour, dotted, concave, irregular at the edge, and more or less turned down and plaited. Three to 4 inches diameter.

Flesh white, changing to a reddish tinge by exposure to the air.

STEM solid, white, smooth, but not even, 2 inches long, more than $\frac{1}{2}$ inch diameter, gently tapering downwards.

Juice milky, somewhat acrid, but not peppery.

Edgbaston plantations.

Aug. 1791.

acrid

AGA'RICUS *acris*. (BOLT.) — Gills reddish buff, 4 in a set, branching. Pileus cool brown, viscid, shining, sloping. Stem whitish, shining, eccentric.—

Bolt. 60.

GILLS decurrent, more so on one side the stem than on the other, pale brown buff, with a reddish tinge, very thick set, the long ones often inosculating.

PILEUS cool brown, viscid, shining, irregular, concave, 2 to $3\frac{1}{2}$ inches diameter, set sloping on the stem. Flesh white.

STEM solid, tapering downwards, flattened at the top, nearly white, shining, crooked, eccentric, 1 to $1\frac{1}{2}$ inch long.

From the crooked stem and the sloping pileus it lies very close to the ground amongst the grass, and is much eaten by the large black snail. It abounds with white milky juice, very acrid to the taste.

This

This species is nearly allied to Var. 1. Ag. Listeri, and I have felt much inclined to connect it with that, but the differences are such that I think the investigation will be facilitated by the present disposition, and further observation may determine more exactly whether that should be arranged as a variety under this species, or where it now stands.

***** GILLS yellow.

AGA'RICUS *testaceus*. (HUDS.)—Gills brown yellow low, 4 in a set. Pileus deep yellow, bossed in the center. Stem yellow, scored, thickest downwards.—

Schæff. 65.

GILLS decurrent, deep brownish yellow, 4 in a set.

PILEUS bright full yellow, with deeper yellow streaks, center bossed, edge turning up, 2 inches diameter. Flesh yellow.

STEM solid, yellow, silky, thickest downwards, 3-8ths of an inch diameter, 3 to 4 inches long, often crooked.

—Gills of the same colour with the Pileus; somewhat running down the stem. Curtain none. (Ag. leoninus of Haller is a different species.) Mr. WOODWARD.

This is undoubtedly the plant of Schæffer, which Mr. Hudson cites as his Ag. testaceus, but he also quotes as a synonym. Haller 2431, which is a very different plant, as appears from the references and description of the latter author, who seems to have missed Mr. Hudson by quoting Schæffer's 65.

Plantations, Edgbaston.

Sept.

AGA'RICUS *adustus*. Gills pale yellow, mostly uniform, forked. Pileus yellow brown, edge greatly parched turned in. Stem yellow brown, with reddish stains.—

Schæff. 72 and 71.

GILLS greatly decurrent, pale yellow when full grown, numerous, nearly of the same length, most of them dividing at some distance from the stem.

PILEUS yellowish brown, with stains of dark red towards the edge; gently convex, but the edge turned down and bent in so as to approach the stem; 3½ to 5 inches diameter; clammy when wet, fatty when dry. Flesh pale dirty yellow.

STEM solid, irregularly hollow with age, yellowish brown, with a few reddish stains; near 2 inches long, and more than 1 in diameter, rather eccentric.

This is a very different plant from the Ag. elephantinus of Bolton, with which it has been confounded, perhaps because the

pileus in both becomes overspread with dark stains, giving the appearance of their having been parched or burnt.

Edgbaston Park, under oak trees.

4th Aug. 1791.

trumpet * AGA'RICUS *tubæfor'mis*. (SCHÆFF.)—Gills pale golden yellow. Pileus funnel-shaped, golden yellow. Stem very long, crooked.—

Schæff. 248 and 249.

Gills decurrent, pale golden yellow. Pileus hollow like a funnel, varying in shape, golden yellow, $1\frac{1}{2}$ inch over. Stem solid, woody, cylindrical, long, crooked, scaly, scored and pitted, golden yellow, 6 inches long, 3-8ths diameter. SCHÆFFER.

Trunks of old trees. June. DICKSON. fasc. 1. 15.

amethyst AGA'RICUS *amethystinus*. (HUDS.)—Gills purple, 2, 3, or 4 in a set. Pileus purple, convex. Stem pale purple, cylindrical.—

Bull. 198—(but Schæff. 13, which he quotes as a synonym, is a very different plant.)

GILLS a little decurrent, beautiful violet purple, not numerous, 2 in a set in the smaller, 3 and 4 in the larger plants.

PILEUS purple, smooth, convex, with age the middle a little hollowed, 1 to 2 inches diameter.

STEM solid, irregularly hollow when old, pale purple, cylindrical, smooth, 2 to 3 inches long, thick as a raven or goose quill.

Stem often crooked. Pileus sometimes bossed. Differs essentially from the *A. violaceus* in habit as well as colour. Mr. STACKHOUSE.—Our plant perfectly agrees with Mr. Hudson's character, and also with the more explicit description by Vaillant. p. 67.

Woods near Bath. Mr. STACKHOUSE.—Plantations, Edgbaston.

July—Oct.

woolly-edged AGA'RICUS *contig'uus*. (BULL.)—Gills yellow, very numerous, mostly branched, and inosculating where they join the stem. Pileus cinnamon, nearly flat, edge woolly, greatly turned in. Stem brown, streaked.—

Batsch. 61.—Bull. 240.

GILLS a little decurrent, yellow, changing to watery brown, very numerous, most of them branched, and where they join the stem, reticulated.

PILEUS cinnamon colour, nearly flat, but a small rising in the center, the edge very much rolled in and clothed with a considerable quantity of pale brown woolly substance; diameter 4 or 5 inches.

Flesh yellowish white, changing when cut, to a reddish brown.

STEM solid, pale brown, with dark bloody streaks, nearly cylindrical, $2\frac{1}{2}$ inches high, $\frac{1}{2}$ inch diameter.

The flesh of the stem changes like that of the pileus, when exposed to the air. Our plant exactly agrees with the excellent plate of Mr. Bulliard, except that our stems are longer and less uniformly coloured.

Fir plantations at Bar, Staffordshire.

12th Sept. 1791.

Pine Groves, Norfolk. Mr. WOODWARD.

* VAR. I. Gills pale brown, numerous, 4 in a set. Pileus red brown, convex, edge rolled in, a velvety belt above it. Stem crooked.

Bolt. 55.

I think this must belong to this place notwithstanding the Gills are said to be pale brown.

In the Burks, and other woods about Halifax.

Sept. Oct. Mr. BOLTON.

AGA'RICUS *necator*. (BULL.)—Gills pale yellow, *deadly* mostly in pairs. Pileus buff, flattish, center hollow and deeper coloured; edge rolled in, woolly. Stem inversely conical. Milky juice extremely burning and acrid.—

Bull. 529.

GILLS decurrent, pale yellow, mostly in pairs; the long ones frequently forked.

PILEUS buff, flat, but concave and deeper coloured in the center, edge turned down, rolled inwards towards the stem, and densely covered with a large quantity of cottony or woolly substance, so as nearly to obscure the Gills, some of these curled fibres when stretched out being near $\frac{1}{3}$ of an inch long. *Flesh* pithy, white.

STEM solid, pale buff, inversely conical, eccentric, crooked, $1\frac{1}{2}$ inch long, full $\frac{1}{2}$ inch diameter in the middle, with age becoming irregularly hollow.

Mr. STACKHOUSE, who sent me this specimen, says, "the whole of the exterior of this plant, which was of a dirty yellowish hue, appeared composed of woolly fibres filled with a glutinous dew."

Near Woolhope, Herefordshire.

11th Aug. 1791.

VAR. I. Gills much branched and inosculating. Pileus brown buff. Stem very short and thick.

GILLS decurrent, numerous, pale yellow, short for the size of the plant, the edge of the pileus turning in so as greatly to lessen the usual distance between it and the stem. These Gills are more irregular than those of any other Agaric I have examined, for they are much branched at both ends, and these branchings inosculate with one another so as to form a net-work, not only upon the stem, but also under the edge of the pileus.

PILEUS

PILEUS brown, or reddish buff, clammy or fatty, nearly flat, but the edge at all times much turned in, and woolly; diameter 3 to 4 inches. *Flesh* yellowish.

STEM solid, buff in the middle, brown below, yellow at the top, nearly cylindrical, $1\frac{1}{2}$ inch long, 1 inch diameter; somewhat eccentric.

The general habit of this plant induces me to place it here, but the want of milky juice would rank it as a variety of the *Ag. contiguus*; knowing however that those plants most abounding with milk are sometimes without it, as I have particularly found in the *Ag. cæsareus*, I think it very possible that a more favourable concurrence of circumstances may teach us that it is really a milky species.

Under large Spanish chestnut trees, in the park at Edgbaston.

6th Aug. 1791.

tawny AGA'RICUS *fulvus*. (BOLT.)—Gills pale yellow, not numerous, 4 in a set. Pileus red buff, conical, changing to convex and bossed, the edge at length turning up. Stem whitish, cylindrical.—

Bolt. 56.—Schæff. 50 and 54.

GILLS pale yellow, decurrent, not numerous, 4 in a set, but the small teeth often excluded, and the larger ones branching and inosculating near the edge of the pileus.

PILEUS red buff, most red in the center, paler with age, at first bluntly conical, the edge turned in, then nearly flat, but bossed in the center, at length the edge turns up and tears.

Flesh white, thin, semi-transparent.

STEM solid, cylindrical, but taper and bent towards the root, white or very pale buff, or very dilute yellow, $1\frac{1}{2}$ to 3 inches high, $\frac{3}{4}$ to $\frac{1}{2}$ inch diameter.

On the bank by the long stew, Edgbaston Park,

Oct.

***** GILLS purple.

ruddy * AGA'RICUS *ruutilus*. (SCHÆFF.)—Gills reddish purple, leathery, few, in pairs. Pileus reddish purple, fleshy. Stem reddish purple, cylindrical.—

Schæff. 55.

GILLS decurrent, moderately numerous, leathery, thick, reddish purple, but lighter than the pileus, turning of a blue mouldy colour in decay.

PILEUS flat, fleshy, thick, smooth, center somewhat depressed, edge turned down, not changing colour as Schæffer mentions.

STEM solid, reddish purple, cylindrical, insensibly swelling at the top into the pileus, tough, 2 inches high or more, 3-8ths diameter. Major VELLE and Mr. STACKHOUSE.

Woods

Woods near Bath. Under fir trees at Pendarvis, Cornwall; often distorted when fully grown, and wrinkled into grotesque shapes. Mr. STACKHOUSE.—Abounds on Claverton Downs, and from its leathery texture continues much longer undecayed than any other species. Major VELLE.

* *AGA'RICUS vis'cidus*. (LINN.)—Gills purple, *clammy* 4 in a set. Pileus rich brown, convex. Stem paler brown, cylindrical.—

Ag. stipitatus, pileo purpurascente fusco viscido. Lamellis fusco purpurascensibus. LINN.

Gills somewhat decurrent, distinct, remote, purple to brown, the short ones tapering to a point, sides woolly, powdery. Pileus convex, hemispherical, and the edge turned in when old, at length turban-shaped and viscid. Stem cylindrical, brown yellow, especially in its horizontal section. *Fl. succ.*

GILLS decurrent, not numerous.

PILEUS convex, edge thin, rather turned down, about 2 inches over.

STEM solid, cylindrical, paler brown than the pileus, $1\frac{1}{2}$ inch high, thick as a goose-quill. Taken from a beautiful drawing and dissection sent me by Mr. STACKHOUSE.

Plantations near Bath. Mr. STACKHOUSE.

§ II. SOLID and FIXED.

* GILLS white.

AGA'RICUS grave'olens. Gills white, very numerous, irregular, 4 in a set. Pileus white. Stem white, tapering downwards.— *strong scented*

GILLS fixed by a small claw, white, very numerous, irregular, mostly 4 in a set.

PILEUS dead white, convex, yellowish in the center, 3 to 4 inches over. *Flesh* thick, white, spongy.

STEM solid, white, fibrous, splitting, crooked, compressed, tapering downwards, 2 inches high, near 1 inch diameter; spongy and white within.

The want of a Wrapper and Curtain distinguishes this from the *Ag. bulbosus*. The Gills are disposed to separate from the pileus as the tubes of some of the Boleti do. It is very strong and unpleasant in its smell, so that it is not an agreeable task to go through the examination of it.

Red Rock plantation, Edgbaston.

20th May, 1792.

* *AGA'RICUS fimbria'tus*. (BOLT.)—Gills watery *curled* white, 4 in a set, nearly gelatinous. Pileus watery white, funnel-

funnel-shaped, curled at the edge. Stem dusky watery white.—

Bolt. 61.

GILLS fixed, very long and narrow, thin and delicate, pellucid, turning to a watery jelly when pressed.

PILEUS convex when young, soon becoming flat, and then funnel-shaped, the edge waved and curled, the surface smooth like vellum, 3 or 4 inches over.

STEM solid, smooth, tough, pellucid, 1 inch high and full $\frac{1}{4}$ diameter.

BOLTON.

I should have considered this as a variety of the *Ag. infundibuliformis*, had not Mr. Bolton assured me that the Gills are not decurrent, and that they separate from the stem in the old age of the plant.

Moist woods about Halifax.

August.

concave AGA'RICUS *depressus*. Gills white, 4 in a set. Pileus pinky or brownish white, center much depressed, edge turned down. Stem pinky white. Juice milky.—

GILLS fixed to the top of the stem, but not extending down it; white, yellowish with age, numerous, 4 in a set.

PILEUS pinky or brownish white, much hollowed in the center, but the edge generally turned down; glutinous, 4 or 5 inches diameter. *Flesh* spongy, white, or pinky.

STEM solid, white, with a pinky tinge; 3 to 4 inches high, $\frac{1}{2}$ inch diameter, thickest downwards.

Juice dilutely milky, that of the Gills more milky than that of the other parts; very acrid.

Edgbaston Park.

14th Oct. 1790.

cream-coloured AGA'RICUS *astivus*. Gills watery white, claws pure white. Pileus cream colour. Stem whitish. Ring permanent.—

GILLS slightly fixed to the stem, watery white, changing to reddish brown when dry, numerous, 4 or 8 in a set, but the claws by which the long Gills are fixed to the stem pure white, not turning brown when dry.

PILEUS cream-coloured, deepest in the center, gently convex, edge turned down, 2 inches over, the skin cracking with age. *Flesh* white.

STEM solid, brownish, flesh white, whitest and pith-like in the center, 2 inches high, thick as a swan's quill, thickest upwards.

Curtain

Curtain white, when torn turned down on the stem; permanent.

Edgbaston, on turf lately mown.

16th June, 1792.

AGA'RICUS *la'cer.* (SCHÆFF.)—Gills white, fleshy, *lacerated* irregular, connected by transverse ligaments. Pileus livid, watery white, bossed, tearing at the edge. Stem white, crooked.—

Schæff. 257.

GILLS fixed, pure white, fleshy, not numerous, 2, 3, or 4 in a set, but mostly 4, the long ones sometimes forked; they are connected by white threads to the pileus and to each other.

PILEUS livid watery white, edge first turned in towards the stem, then turning up, irregular, cracking and tearing, center bossed, surface scored, 1 to 2 inches over. *Flesh* white.

STEM solid, white, crooked, nearly cylindrical, often compressed, rarely quite central, 2 inches high, full $\frac{1}{4}$ inch diameter.

This has very much the habit of the *Ag. aurantius*, but the solid stem, and the want of slimy surface distinguish it. The drawings of Schæffer 257, are very characteristic, but the colouring not very exact.

Edgbaston, after much gentle rain, by the long stew.

12th Oct. 1791.

AGA'RICUS *opa'cus.* Gills white, numerous, 2 or 4 in a set. Pileus dead white, nearly flat. Stem white, pith brown.—

GILLS fixed, white, very thick set, and very fine, in pairs or in fours.

PILEUS white, opake, smooth, nearly flat when expanded, but a little turned down at the edge, and a very small protuberance in the center, cracking when old, and the skin readily peeling off, diameter $1\frac{1}{2}$ to 2 inches.

STEM solid, white, cylindrical, 2 inches high, $\frac{1}{4}$ inch diameter, filled with a watery, and, when old, with a brownish pith.

Edgbaston Park.

14th April 1792.—9th Sept. 1791.

* **AGA'RICUS** *fra'grans.* Gills brown white, 4 in a set. Pileus brown white, semi-transparent. Stem brown white.—

GILLS fixed, beautifully regular like the teeth of a very fine comb.

PILEUS not fleshy, but somewhat transparent, from $\frac{1}{2}$ to 2 inches over.

STEM

STEM solid, 1 to $2\frac{1}{2}$ inches high, as thick or thicker than a swan's quill.

This Agaric is by no means uncommon with us, and if it grows in other parts, it is matter of surprise that it should have remained unnoticed so long. It imparts a fragrant odour like that of new mown hay. Its colour approaches nearly to our general notion of a stone colour, and does not vary throughout the different parts of the plant. The transparency of the pileus shewing the form of the Gills through its surface, it might be called striated, as well as other fleshless Agarics; but this distinction, when it does not arise from colour, or some peculiar structure of the pileus itself, is with more propriety omitted. Major VELLE. Y.

Among the firs on Claverton Downs, near Bath.

scaly AGA'RICUS *furfuro'sus*. Gills watery white, 2 or 4 in a set, but irregular. Pileus yellow brown, scaly. Stem yellow brown, crooked, scored.—

GILLS fixed, watery white, turning to a brownish cast with age, not numerous, 2 or 4 in a set, but very irregular.

PILEUS yellow brown, scaly, conical when young, turning up and cracking at the edge with age; very uneven, not fleshy, $\frac{1}{2}$ to $\frac{3}{4}$ inch over.

STEM solid, yellowish brown, splitting, crooked, scored or rather fluted with longitudinal furrows, thick as a raven's quill, $\frac{3}{4}$ to 1 inch high. Root a roundish knob.

From the turning up of the pileus and the grooves on the stem, the Gills get rather a decurrent appearance.

Filbert hedge, Edgbaston Gardens.

18th June, 1792.

*spindle-stem-
med*

AGA'RICUS *cras'sipes*. (SCHÆFF.)—Gills white, brownish at the edges, fleshy, distant, 4 in a set. Pileus reddish brown, bossed, cracking. Stem greatly tapering downwards, ribbed.—

Schæff. 88. 1.—Bull. 106, and 516, 2, but the boss not sufficiently marked, particularly in the latter plate.—Schæff. 87. f. i. 2. 3, only; the lower figures being a different plant.

GILLS fixed, white, rusty brown at the edge, fleshy, wide apart, 4 in a set, the smallest series very small for the size of the plant.

PILEUS reddish brown, smooth, and leathery, rather flat, but bossed in the center, cracking, $2\frac{1}{2}$ inches or more in diameter.

Flesh white.

STEM solid, tapering downwards to a point, ribbed, crooked, pale brown above, deep red brown below.

Agrees very well with BULLIARD 106, except in lying on the ground, for mine were immerfed near half the ſtem in the earth, and grew tolerably upright, ſupporting one another. Specimen and deſcription from Mr. STACKHOUSE, who has made a much better drawing of it than any of the figures extant, as he has alſo done of many more Britiſh ſpecies, the inedited particulars of which I hope he will ſome day be induced to publiſh.

Foot of trees, Woolhope, Herefordſhire.—At the baſe of decaying trees, frequent. Mr. WOODWARD.

AGA'RICUS *musca'rius*. (LINN.)—Gills white, ſhort *fly* ones ſolitary. Pileus browniſh or reddiſh, convex. Stem ſcaly. Ring broad, turned down.—

Pileus large, rather flat, generally red, ſprinkled with downy angular warts. *Gills* flat, inverſely ſpear-shaped, moſtly entire, the few ſhorter ones very blunt, and without other ſmaller ones on each ſide them, which is peculiar to this ſpecies. *Stem* cylindrical, a cavity within it, * baſe bulbous, warty, top expanded. *Ring* on the middle of the ſtem, looſe, pendant.

Varies with the *Pileus*, *white* or *red*, or *crimſon*, and *warty*.

Mixed with milk it kills flies. The expreſſed juice rubbed on walls and bedſteads expels bugs. LINN.

GILLS fixed, white, yellowiſh with age, numerous, moſtly uniform, but a ſhorter one ſometimes intervening. Theſe ſhorter Gills vary very much in length, but are rarely leſs than 1-third the length of the long ones.

PILEUS varying much in colour, very fleſhy, convex, turning up with age, 2 to 7 inches over. *Fleſh* white, reddiſh in decay.

Warts raiſed, compact and angular; or thin, flat, and ragged.

STEM ſolid, the internal ſubſtance ſhrivelling with age leaves irregular hollows; ſcaly, bulbous at the baſe, 3 to 5 inches high, $\frac{1}{4}$ to $1\frac{1}{2}$ diameter.

Ring broad, permanent, turned down upon the ſtem.

Ag. ſtipitatus, lamellis dimidiatis ſolitariis; ſtipite volvato, apice dilatato, baſi ovato. *Fl. Suec.* 1235.

This plant riſes out of the ground incloſed within its brown ſtudded wrapper (*Volva* of ſome authors, but not of LINN.) A ſection made vertically ſhews all the parts in their original poſition, and alſo the Curtain (the real *Volva* of LINN.) which remains long after, forming when torn by the expansion of the pileus, the broad ring upon the ſtem deſcribed above. The Warts upon the pileus are

* Only hollow when old. WITH.

are fragments of the wrapper, a fact which I was for a time indisposed to credit, because they often adhere so strongly to the pileus as not to separate without tearing up its skin.

VAR. 1. Pileus white, warts yellowish. Stem white.

In this variety a short Gill, or a Gill of a third series, sometimes appears. Pileus but 2 inches diameter; stem 2 inches high.

Edgbaston.

16th Sept. 1791.

* VAR. 2. Pileus blood red, without warts.

Bolt. 27.—Schæff. 28.

Stem brownish white.

Dry woods about Halifax, Yorkshire. Mr. BOLTON.

* VAR. 3. Pileus blood red, with white warts.

Bull. 122.—Schæff. 27.—Clus. ii. 280.—Ger. em. 1581. 3.

—(Cop. in the following,) J. B. iii. 841. 2.—Park. 1321. 8.

—Sterb. 22. A.

Stem white.

Plantation, on the South bank of the upper pool, at Hatton, near Shiffnal, Shropshire.

June.

* VAR. 4. Pileus pale red, with reddish warts.

Bull. 316.—Schæff. 261.—Bolt. 139.

Mr. Bulliard says the Gills are loose, but Mr. Bolton observes that they adhere by a small claw to the top of the stem. The latter says it has no wrapper, but the former observes that it has an imperfect one which disappears in the progress of the growth of the plant; and this also is the opinion of Schæffer. Stem white above, pinky below.

In a dry gravelly soil near Leebridge.

12th June, 1790. Mr. BOLTON.

* VAR. 5. Pileus pinky brown, with whitish, flat, thin, ragged warts.

Schæff. 90. f. 1. 3—but the drawing of the Gills does not agree with the description.

Warts irregular in shape, in clusters, light brownish colour and wrinkled, adhering slightly to the pileus, and may be rubbed off.

Mr. STACKHOUSE.

VAR. 6. Pileus pinky brown, fatty, with small, angular, hard, greyish warts. Stem brownish white.

Curt. 312.—Schæff. 90. 2. 4. and 91; (but the drawing of the Gills does not accord with our plant, nor with the author's own description.)—

Mich. 78. 1.

Stem pinky brown, or brownish white; Ring reddish buff. Flesh white, getting a pinky tinge after being some time exposed to the air.

The 5th and 6th varieties constitute the *Verrucosus* of Mr. Hudson, who refers also to Haller, 2397, which is a different plant, the same as Bauh. hist. iii. 826, Sterb. 20. K. and Ray syn. 7. 31.

Ag. verrucosus. HUDS.

Edgbaston

Edgbaston Park, where grafs had been mown. May. Aug.—Nov.

* VAR. 7. Pileus dirty yellow, with dull red clouds.

Curt. 312.—Mr. Stackhouse's drawing.

Pileus smooth, glutinous. Warts light-coloured, thin, crumpled. Stem slightly tinged with red. Ring beautiful, standing aloof from the stem in a wavy line, and finely striated.

Pendarvis, Cornwall.

28th July, 1790.

* VAR. 8. Pileus olive brown. Warts black.

Pileus in colour not unlike the bark of a young Ash tree. Warts irregular, large, blackish. Mr. STACKHOUSE.

Pasture land, Woolhope, Herefordshire.

VAR. 9. Pileus olive brown, without warts. Gills 4 in a set.

This turns up with age, not in the usual mode at the edge, but the whole pileus doubled together.

Fir plantations, Bar, Staffordshire.

Sept.

I have been the more particular in the display of this species and its different varieties, on account of the great confusion caused by the latter, the various times it has been figured under different names, and the authority of Mr. Hudson, who has made two species out of one, and has inadvertently quoted as a synonym still another, and really a different plant.

AGARICUS *ter'reus*. (SCHÆFF.)—Gills white, dirt-coloured numerous, 8 in a set. Pileus brown, shaded, convex, irregular, cracking. Stem white, conical, eccentric.—

Schæff. 64. 1. 2. 3.

GILLS fixed, watery white, numerous, 8 in a set, the smaller Gills varying much in length.

PILEUS light watery brown, with various shades, scored, convex, rather bossed, edge turned down, and the sides with 1 or 2 large irregular depressions, cracking with age, 2½ to 4 inches diameter.

Flesh white, spongy.

STEM solid, white, smooth, rather crooked, tapering to the root, rarely central, 2½ inches long, ½ inch diameter. RAY syn. 5. 21. which Mr. Curtis would not have assigned to the *Ag. ovatus*, had he sufficiently considered the description of Ray.

In clusters. Edgbaston, under the large oak by the bolt of the square stew.

4th Sept. 1791.

VAR. 1. Gills white, 4 in a set, wide a-part. Stem tapering upwards.

Schæff. 64. 4.—Fl. dan. 832. 3, seems to be the same plant, of a dwarfish growth, and a rough pileus.

GILLS fixed, very white, fleshy, broad, wide asunder, 4 in a set. PILEUS reddish mouse, fattiny, convex but uneven, 3 inches diameter, oblique.

STEM solid, very white, crooked, tapering upwards, many united together at the base, 2 inches long, $\frac{1}{2}$ inch diameter.

Coplar wood, Herefordshire. Sept. 1791.

Specimen, description, and a drawing from Mr. STACKHOUSE.

VAR. 2. Gills 8 in a set. Pileus scaly. Stem thinnest in the middle. Root bulbous.

In the Garden at Edgbaston. 18th June, 1792.

* VAR. 3. Pileus livid, conical, bossed. Gills dirty white. Stem crooked.

Schæff. 14.

Stem irregularly hollow when old, and often so much curved that the pileus is bent down to the ground. Pileus very variable, somewhat hairy, paler when old, and the border frequently split. Mr. WOODWARD.—The death-like paleness of the Gills distinguishes this plant. The hue of the pileus variable, but most frequently of a dove colour. Schæffers t. 14, the Gills ill-coloured. This Agaric frequently comes up in waved lines of a considerable extent, or in great circles, 10 or 15 yards in diameter. Major VELLE.

Ag. lividus. HUDS. 616. RELH. 937.

Woods and hedges. [Pine grove, Kirby. Mr. WOODWARD.]

Oct. April.

* VAR. 4. Gills extremely white. Pileus mouse colour, shaded with brown. Stem cylindrical, thick, dirty white, straight.

Gills not reaching the stem, but leaving a channel round it. Pileus flat, $2\frac{1}{2}$ inches over. Stem $2\frac{1}{2}$ inches high, $\frac{1}{2}$ inch diameter, splitting. Drawing and description from Mr. STACKHOUSE.

Grows in long extended lines; in woods near Bath. Mr. STACKHOUSE.

pale-faced AGA'RICUS *leucoceph'alus*. (BULL.)—Gills white, 4 in a set. Pileus, center mouse, convex, border white or pinky. Stem white, cylindrical, crooked, brittle.—

Bull. 536.—Bull. 428. 1, more bossed than our specimens.

GILLS fixed, white, brittle, 4 in a set.

PILEUS convex, silky, center dilute mouse, lightly shaded off, border white, when young sometimes tinged with pink, cracking with age, $1\frac{1}{2}$ to 4 inches diameter.

STEM solid, white, cylindrical, but often compressed, crooked, silky, 1 to 2 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. Central when young, not always so in a more advanced age.

Grows in clusters; pasture land, Edgbaston, particularly by the long fiew.

27th Oct. 1790.

AGA'.

* *AGA'RICUS plumo'sus*. (BOLT.)—Gills white, *feathered*
4 in a set. Pileus convex, mouse-coloured, tufted. Stem
mouse-coloured, tufted, cylindrical, crooked.—

Bolt. 33.

GILLS fixed, white, broad, numerous, dry and light.

PILEUS thickly covered like the stem with mouse-coloured downy
matter, thin, light, dry, flexible, $1\frac{1}{2}$ inch over.

STEM solid, hard, thick as a duck's quill, $\frac{1}{4}$ inches high. *Curtain* white,
evanescent. BOLTON.

In a steep wood near Halifax.

Aug.

AGA'RICUS gra'cilis. Gills pure white, strong, *elegant*
not crowded, 8 in a set. Pileus pure light brown, flat,
thin, bossed. Stem tall, slender, brownish.—

GILLS fixed, very white, rather distant, fleshy, regularly disposed
8 in a set.

PILEUS cool brown, shining with moisture but not viscid, thin,
nearly flat, but a gentle rising in the center and radiated round
the boss, diameter 3 to 4 inches.

STEM solid, smooth, lattiny, white at the top and bottom, pale
mouse in the middle, 8 inches high, $\frac{1}{4}$ inch diameter, gently
tapering upwards, splitting. *Flesh* brown, white in the center.

VAR. 1. Gills very much branched. Stem entirely white.

Edgbaston, Red Rock plantation.

Aug. Sept. 1791.

AGA'RICUS elas'ticus. Gills white, 4 in a set. *elastic*
Pileus chestnut, semi-globular. Stem buff, tapering up-
wards and downwards. Ring none.—

Scheff. 87. 4. 5. (*but the stem too red and too much ribbed.*)—*Bull.*
516. 2, resembles it, but this plate is so far unfinished that I cannot
quite decide until the text shall be published. The author calls it
fusipes, which he figured before in plate 106, but if it be only a
variety of that, his own observations at the foot of the plate must
prove unfounded. The smaller figures give a pretty exact idea of
our plant, but the stems have too much colour.

GILLS fixed, whitish, 4 in a set.

PILEUS chestnut colour, semi-globular, uniform, clothly.

Flesh white, moderately thick.

STEM solid, buff, with a few small red brown blotches, smooth, $1\frac{1}{2}$
to 2 inches high, $\frac{1}{2}$ inch diameter, tapering upwards from $\frac{1}{2}$ inch
above the ground, and from the same part rapidly tapering
downwards so as to end in a slender root; sometimes rather
ribbed.

This Agaric is very tough and strong, with a considerable share of elasticity. Mr. Stackhouse observes that the edge of the pileus coops in like the button of a common Mushroom, that the Gills are numerous, stiff, and white, that it is often found not in clusters, and that in many instances it approaches the *Ag. crassipes*. To this opinion I perfectly agree, and further remark, that the tendency to a ribbed stem in some of the specimens still increases the affinity; but until the *Ag. crassipes* shall be better known, especially in its younger and smaller forms, I think the difficulties will sooner be cleared up by keeping them apart. The want of a boss on the pileus, the absence of cracks in its skin, the want of strongly marked ribs on the stem, and more than all, the tough elastic substance of the plant, prevent me at present from arranging it as a variety of the *crassipes*.

Not *Ag. elasticus*. BOLT.

Under oak trees in Edgbaston Park.

21st Aug. 1791.

VAR. I. Gills brown white, shallow, 4 in a set. Pileus brown, convex, fatty. Stem white. Ring none.

GILLS fixed very strongly to the stem, brownish white, very narrow, 4 in a set, the smaller series often hid under the edge of the pileus, which turns inwards over them.

PILEUS brown, fatty, shining, convex, $2\frac{1}{2}$ inches over.

Flesh very thick, white.

STEM solid, white, fatty, cylindrical, rarely straight, 2 inches high, $\frac{1}{2}$ inch diameter.

I have not been able to find either a Curtain or a Ring.

The whole substance very strong and elastic. It grows single or in clusters.

Under the large oak by the bolt of the square stew, Edgbaston Park.

18th Sept.

stump AGA'RICUS *stip'itis*. Gills white, 4 in a set. Pileus cool brown, darker and woolly in the center. Stem pale brown with a buffy tinge, thicker and bulbous at the base. Ring white, permanent.—

Bolt. 136.—Mich. 81. 2.

GILLS fixed, quite white, narrow, thin, pliable.

PILEUS at first bluntly conical, then nearly flat, almost white at the edge, cracking very much through the whole substance, but not turning up, 2 to 4 inches over.

STEM cool brown, 3 to 4 inches high, $\frac{1}{2}$ inch diameter. Curtain thick, tough, cottony, white.

Edgbaston Grove, where large trees had been fallen four or five years before.

2d Oct. 1791.

VAR.

VAR. 1. Gills white, 4 in a set. Pileus rich brown. Stem pinky or brownish white, tapering at the base. Ring yellowish.

Fl. dan. 1013.—Schæff. 74.

GILLS strong.

PILEUS at first bluntly conical, dark reddish brown and woolly at the apex, the edge olive brown; afterwards a more uniform rich brown.

STEM cylindrical, rarely straight, tapering greatly downwards at the root.

In similar situations with the preceding.

Oct.

VAR. 2. Gills white, fleshy, 8 in a set. Pileus dark brown and olive. Stem nearly white, cylindrical. Curtain and Ring yellow.

PILEUS dark and woolly in the centre, border rich yellow olive, 1 to 1½ inch diameter, cracking and turning up when old.

STEM white, with a pinky or brownish tinge, cylindrical throughout, 2 to 3 inches high. *Curtain* cottony, pale yellow. *Ring* deeper yellow. A much smaller plant than the preceding varieties.

On a hedge bank in the Edgbaston old road.

25th Sept.

VAR. 3. Gills white, 4 or 8 in a set. Pileus convex, different shades of brown. Stem nearly cylindrical, brownish. Curtain woolly. Ring broad, turned down on the stem, permanent.

GILLS fixed, white, 4 or 8 in a set.

PILEUS various shades of yellow, red, or olive, to cool pale brown, darker in the center, convex, slightly bossed, edge turned down, cracking when fully expanded, 1½ to 4 inches over. *Flesh* white.

STEM solid, spongy, smooth, from rich red brown to nearly white, cylindrical, seldom straight, silky, shining, 2 to 4 inches high, ½ inch diameter.

Ring permanent, formed by the curtain, which is thick, tough, and woolly, turning down upon the stem. The curtain in the young state of the plant extends up the stem quite to the Gills, and then stretches downwards to the edge of the pileus, forming striæ or rising scores upon the top of the stem, to which the Gills are not connected, but which on a careless examination gives them an appearance of a decurrency, not really existing.

Grows in large clusters in the hollows left by the felling of trees.

Sept. Oct.

* VAR. 4. Gills dusky white, fleshy, tough, distant, 4 in a set. Pileus convex, rust-coloured. Stem rust-coloured, tapering upwards. Ring white, tough, permanent.

Bolt. 16.

GILLS adhering to the stem by a narrow claw.

PILEUS 1 inch diameter, feeling like harsh woollen cloth. *Flesh* white.

STEM solid, firm, elastic.

The whole plant of a tough leathery substance, and in decay dries and withers. Fixby Park, under oak trees. Oct. 1786. BOLTON.

* VAR. 5. Gills white, in pairs. Pileus fox-colour, convex. Stem brownish. Ring white, permanent.

Bolt. 19.—Battar. 11. F.

GILLS few, narrow, brittle.

PILEUS clothly, not much broader than the top of the stem, convex.

STEM thick as one's thumb in the largest plants, clustered together, and uniting near the root.

Curtain narrow, dead white, soft, cottony. Substance dry, light, spongy, compressible, elastic.

Takes root under the bark of decaying larch trees. In a small plantation at Lee Bridge, near Halifax. Autumn. BOLTON.

cupped * AGA'RICUS *cyathoides*. (BOLT.)—Gills white, 4 in a set, changing to brownish white. Pileus umber brown, flat, but soon turning up. Stem grey white, with whiter reticulated veins.—

Bolt. 145; (but none of the references.)

GILLS fixed.

PILEUS thin, smooth, silky, 2 or 3 inches over; soon turning completely up so as to form a funnel-like cup, which sometimes contracts partially so as almost to form distinct cups.

STEM solid, consisting of a strong rind, filled with a white spongy pith. Surface dusky white, marked with longitudinal reticulations of a whiter colour. BOLTON.

Grew under an old melon frame.

Feb.

circled AGA'RICUS *zona'rius*. (BULL.)—Gills buffy white, 4 in a set, but irregular and variously branched, Pileus pale brown, with darker circles, gently convex, edge turned in. Stem nearly cylindrical, buffy white.—

Schæff. 235, (very exact to our specimens.)—Bull. 104, the plant, but paler than ours.

GILLS fixed, white, with a very pale buffy tinge, numerous, 4 in a set when regular, but the long ones often splitting, and then the smaller ones are excluded.

PILEUS pale brown, with concentric circles of a reddish brown, smooth, flattish at the top or rather a little depressed, sides bent down and a little turned in, $1\frac{1}{2}$ to 3 inches over.

Flesh white, thin.

STEM solid, white, with a slight buffy or pinky tinge, cylindrical, or a little tapering downwards, rarely quite straight, or quite central, $1\frac{1}{2}$ inch high, $\frac{1}{2}$ inch diameter.

Milk

Milk in the Gills and cortical part, of the Pileus abundant, white, very acrid.

Dam of the great pool in Edgbaston Park, plentifully, but I have not found it elsewhere. 4th Aug.

AGARICUS *integer*. (LINN.)—Gills white, mostly *crimson* uniform. Pileus of various tints from red to brown. Stem white.—

GILLS fixed, white, mostly uniform, fleshy, moderately thick set, yellowish with age.

PILEUS crimson, pink, lilac, or tawny brown, changing to dirty yellow, or to lead colour; often glutinous, regularly convex, often scored at the edge, which turns up when old; from 1 to 4 inches over. *Flesh* white.

STEM solid, white, cylindrical, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high, $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter.

Ag. stipitatus, lamellis omnibus magnitudine æqualibus. Fl. Suec. 1230.—Ray Syn. p. 4. n. 16.

This is a very common Agaric, and one of the most beautiful of the tribe, but its evanescent and varying tints, as well as the great differences in its size, are apt to puzzle the younger botanists. The skin of the pileus is very ready to strip off. Snails are very fond of this species.

VAR. 1. Gills uniform, connected by cross threads. Pileus pink to lilac.

Bolt. 1.—Schæff. 58—75—92, are all representations of this plant, in general pretty well done.†—Battar. 15. C. E.—Fl. dan. 1000. 1, a young plant only.—Batsch. 13, far from good.—Sterb. 22. F.

Pileus plano-convexus, vix carnosus, pallidus aut sanguineus, margine supra sulcato punctisque striato, a lamellis versus marginem interiorem capituli ab initio denticulato-connexis. Lamellæ pallidæ et notanter omnes integræ s. equales. Stipes magnus, albus. Fl. Suec. 1230. 2.

Pastures, particularly under trees. Aug.—Nov.

VAR. 2. Gills mostly uniform, yet with a shorter one sometimes intervening; connected by cross threads. Pileus crimson.

† The Gills in most of Schæffer's plates of this plant, are erroneously drawn, I say erroneously, because his own descriptions often differ from the drawings. Thus, in pl. 58, 92, he particularly describes the Gill as equal, but in the fig. they are of two different lengths, except only in pl. 92. f. 2. The same may be said of pl. 93, 94, where they are described as equal, but figured of two or even three different lengths. I don't know that these varieties, viz. Schæff. 93, 94, have yet been seen in England.

Schæff. 15—16.

This is the most common one, is found in similar situations and seasons with the former. The threads or ligaments connect the Gills with each other and with the Pileus. They are white, and are mostly found pretty close to the inside of the pileus.—Ray *syn.* p. 3. n. 7, probably this plant.

VAR. 3. Gills often forked, sometimes at both ends, and inosculating with those on each side. Pileus blood red.

Bull. *Ag. sanguineus.*

Stem a kind of horny coat filled with a spongy matter. This circumstance is more obvious in this than in the other varieties, but I can find no other difference.

Pastures, particularly under large oaks, Edgbaston. 10th Aug.
VAR. 4. Pileus delicate grey, changing to lead colour.

Herefordshire. Pendarvis, Cornwall. Mr. STACKHOUSE.—Dam of square stew, Edgbaston. 17th Oct.—Tettenhall plantations.

July.

VAR. 5. Pileus dirty yellow. Gills yellowish, uniform.

GILLS fixed, perfectly uniform, yellow or yellowish white.

PILEUS convex, center hollow when fully expanded, viscid, yellow; in some specimens quite yellow in the center, buffy on the sides, and with still more of a reddish tinge at the edge; 4 inches over.

STEM solid, but spongy; white, or yellowish white, tapering upwards, 2 inches high and 1 inch diameter.

There is little doubt but Mr. Hudson's luteus, rejecting the *Synon.* of Vaill. is a variety of integer. Mr. WOODWARD.

Ag. luteus. HUDS.

Mr. Hudson remarks the affinity of this to the *Ag. integer*, and I suspect that its differences arise from growing in the shade of trees.

Meadows and pastures under trees and in groves. Aug. Oct.—Under a large oak in Edgbaston Park. 10th July, 1792.—At Woolhope, Herefordshire. Mr. STACKHOUSE.

* VAR. 6. Pileus dirty yellowish or reddish. Gills very white, unequal, Juice milky, mild. Drawing and description from Mr. STACKHOUSE, who found it on Coplar Hill, near Hereford.

flat-topped

AGARICUS *truncatus.* (SCHÆFF.)—Gills dirty white, in pairs. Pileus brick red, conical but flat at top when young. Stem whitish, cylindrical, swollen at the root.—

Schæff. 251.

Gills fixed. Pileus conical but flat at the top when young, changing to convex, and nearly flat when old; 2 inches over. Stem solid, 1½ inch high, ¼ inch diameter, swollen and brown at the base.
SCHÆFFER.

Ag. viscidus. HUDS. 614. 18.

This is introduced from Schæffer on the authority of Mr. Hudson, who refers to it as a synonym to the *Ag. viscidus* of Linn. which is a very different plant to this of Schæffer; but as the character Linnæus gives to his *viscidus* could never lead Mr. Hudson to this plant of Schæffer, I must suppose that he had found the latter to be the plant before him, and only erred in referring it to the species of Linnæus. Mr. Hudson likewise refers to Scop. 1477, but Scopoli refers his species, which he calls *purpurascens*, to Fl. Suec. 1232, and these seem also to be Schæffer's plant. The real *Ag. viscidus* of Linnæus has lately been found in England, and will therefore be introduced in its proper place.

Woods and groves.

Sept. Oct.

* **AGA'RICUS** *cro'ceus.* (BOLT.)—Gills white, 4 *safron*
in a set. Pileus rather conical, knappy, yellow. Stem *coloured*
white, in part covered with yellow knap.—

Bolt. 51. 2, drawing too small.—Bull. 362, larger and more of a brown cast.—Batsch. 97.

Gills fixed, numerous. Pileus at first conical. Stem cylindrical, solid, 3 inches high, thick as a swan's quill; white, but more than half its length covered with a woolly knap of a yellow colour. Curtain fugacious, fixed to the stem where the woolliness ends. BOLT.

GILLS numerous, unequal, pure white.

PILEUS golden brown, velvety, convex.

STEM colour of the pileus as high as the ring: Curtain delicate, brown, separating in fringes on the edge of the pileus and on the stem. Mr. STACKHOUSE.

In the Burks, and other woods about Halifax.—Comb Woods, near Bath. Mr. STACKHOUSE.

AGA'RICUS *elephantinus.* (BOLT.) — Gills *elephant*
yellowish white, fleshy, wide apart, 4 in a set. Pileus
brown yellow, changing to black, and cracking. Stem
white.—

Bolt. 28.—Battar. 9. A.

GILLS fixed, yellowish white, very fleshy, set wide asunder, 4 in a set. PILEUS brown yellow, viscid, changing to almost black, and cracking like burnt clay; semi-globular, but with irregular depressions. Flesh white.

STEM

STEM solid, white, contracted at the bottom, 2 to 3 inches high, and 2 in diameter.

This and the following species require further attention to determine whether they really are or are not distinct. I am disposed, from their general habits, to believe they are not, but yet I am staggered by the remarkable differences in the structure of the Gills.

Edgbaston Park, in various places, but always under oak or Spanish chestnut trees.

13th Aug. 1791.

gold-headed

AGA'RICUS *auratus*. Gills yellow white, uniform, often splitting, connected by threads. Pileus golden yellow, viscid, flat, the sides turned down. Stem white.—

GILLS fixed, yellowish white, in one series only, often splitting, connected and strengthened by transverse threads or ligaments extending from one Gill to another near the inner surface of the pileus.

PILEUS deep golden yellow, changing when old to dark blotches as if the effect of fire; viscid, flattish at the top, 5 inches over, about an inch of the border turned down nearly square with the flat top, and parallel to the sides of the stem. *Flesh* white.

STEM solid, white, tapering upwards so as to be far thinner at the top, 2 inches high, 1 inch diameter.

When an unexpanded button, the whole plant is entirely white, or entirely yellowish. This species, though so large and so remarkable, seems to have been overlooked. Probably the dark burnt blotches upon the pileus may have caused it to be confounded with the *Ag. adustus*, before mentioned, or with the *Ag. elephantinus*. The difference however of structure has satisfied me that it is not the former species. Major Velley very justly remarked to me, that the *viscid* Agarics are much disposed to get dark tints. This plant cannot be the *Ag. viscidus* of Mr. Hudson, for he cites, though doubtfully, Vaill. 62. n. 14, which is a plant of no uncommon bulk or solidity. The Gills too in his are yellow.

Ag. quinquepartitus. LINN.?

Under a large oak, near the second stew, Edgbaston Park.

21st Aug. 1791.

green

*AGA'RICUS *viridis*. (RAY.)—Gills white, fleshy, brittle, 4 in a set. Pileus blue green. Stem cylindrical, whitish.—

Bolt. 12.—*Sterb.* 5. C.—(*Schaff.* 1, is *Ag. aruginosus*.)

GILLS fixed, narrow.

PILEUS hemispherical, 2 or 3 inches diameter, greyish blue, dry, feels like coarse cloth. *Flesh* thick, firm, hard, brittle, white.

STEM

STEM solid, dusky white, cylindrical, hard, 3 inches high, thick as a swan quill. BOLTON.

Fungus magnus viridis. RAY syn. p. 2. n. 3. — Ag. cæruleus.

BOLT. p. 12.

VAR. 1. Gills whitish. Stem greenish.

Ag. viridis. Hudf. 614. 16. excluding the references to Haller and Schæffer.

In woods.

Aug.—Oct.

** GILLS brown.

AGARICUS vaccinus. (SCHÆFF.) — Gills pale *brinded* brown, edge white, 8 in a set. Pileus brown, scurfy, convex, gently bossed. Stem cylindrical, brown. —

Schæff. 25; very good.

GILLS fixed, pale, changing to reddish brown, white at the edge when young, 8 in a set.

PILEUS brown, convex, slightly bossed, scurfy with scales of various shades of brown, $1\frac{1}{2}$ to 3 inches over.

STEM solid, cylindrical, brown, scored, 3 to 4 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, often crooked.

Flesh of the whole plant white, attaining a reddish tinge when exposed to the air.

Plantations in Edgbaston Park.

13th Sept. 1791.

AGARICUS fordidus. (DICKS.) — Gills brown, 8 *fordid* in a set. Pileus darker brown, hollow. Stem cylindrical, brown, bulbous. —

Bolt. 59.—Dickf. t. 3. f. 1.

GILLS fixed, dead brown, 4 or 8 in a set, moderately numerous.

PILEUS brown, darker than the Gills or stem, and still darker in the center, funnel-shaped, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches over.

STEM solid, brown, cylindrical but a little swollen at the base to form the root, 2 to 4 inches high, $\frac{1}{8}$ th to $\frac{1}{4}$ th inch diameter.

Ag. stipitatus, pileo et lamellis livido-fuscis, centro umbilicato, margine deflexo, stipite basi crassiore.—Obs. Pileus totus fuliginosus.

DICKS. fasc. cryp. p. 16.

Pastures, Edgbaston.

Nov.

Pastures and commons near Bungay. Mr. WOODWARD. — Woods near Bath. Mr. STACKHOUSE.

AGARICUS araneofus. (BULL.) — Gills red brown, *broad-gilled* broad and short, 4 in a set. Pileus brown, conical, cracked. Stem brown, tapering downwards. Curtain pale brown.

Bull. 431. 4; araneofus rimofus.

GILLS

GILLS fixed, reddish brown, 4 in a set, large Gills nearly as broad as long, and fixed by a claw to the stem.

PILEUS convex, rather conical, brown, fatty, with cracks of a paler colour from the center to the edge, $1\frac{1}{2}$ inch over. *Flesh* very thin, pale yellow.

STEM solid, brown, fatty, cylindrical, but rather thickening towards the bottom, 2 to 3 inches high, 2-8ths to 3-8ths diameter.

Curtain pale brown, fatty, evanescent.

Edgbaston Park.

17th Sept. 1791.

striped AGA'RICUS *rimo'sus*. (BULL.)—Gills olive brown, 2 or 4 in a set. Pileus striped reddish brown and yellow, conical, bossed. Stem yellowish white, cylindrical.—

Bull. 388; (*excellent.*)

GILLS fixed, olive brown, 2 or 4 in a set.

PILEUS conical, bossed, striped red brown and yellow, by cracks extending from the edge to the base of the boss; border uneven, 2 inches over; tearing with age.

STEM solid, yellowish white, cylindrical, but thickened just under the pileus, crooked, smooth, 2 to $2\frac{1}{2}$ inches high, thick as a goose quill.

Pastures, Edgbaston.

Early in Aug. to the end of Sept.

Spanish snuff AGA'RICUS *orichal'ceus*. (BATSCH.) — Gills dark cinnamon, not numerous, 4 or 8 in a set. Pileus gently convex, pale cinnamon, edge rather turned down. Stem whitish, nearly cylindrical.—

Batsch. 184; (*very good.*)

GILLS fixed to the stem by a claw, very broad, dark cinnamon, not very numerous, 4 in a set in the smaller, 8 in the larger specimens.

PILEUS regularly and gently convex, light cinnamon, sometimes darker in the center, edge a little turned in, viscid in moist, fatty in dry weather; 1 to 3 inches over. *Flesh* white, not thick. *Curtain* evanescent, leaving a stain on the stem.

STEM solid, whitish, with a few brown scales, often stained by the fall of the seeds from the Gills, which are of a Spanish snuff colour, cylindrical, but rather thickest upwards; 2 to 4 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. *Root* a small bulb.

A large quantity of seeds fall from the Gills of this Agaric, staining the fingers as well as the stem of a Spanish snuff colour. Stem solid, but it has a central pith different in colour from the surrounding flesh.

Plantations at Edgbaston, and at Bar.

Sept.
AGA'

AGA'RICUS *laticaulis*. Gills brown, numerous, *milky-stemm'd* 2 or 4 in a set. Pileus convex, light brown buff, border whitish. Stem white, bending, splitting.—

(One of the taller fig. in the plate of Bull. 102, if properly coloured, would give a tolerable idea of this plant in its fully expanded state.)

GILLS fixed, brown, very numerous, 2, but mostly 4 in a set.

PILEUS gently convex, nearly flat when fully expanded, cracking in the center, brownish buff in the middle, paler and almost white towards the edge, 2 to 2½ inches over. *Flesh* very thin, white.

STEM solid, white, cylindrical, tender, splitting, mostly crooked, 4 or 5 inches long, thick as a goose quill.

Juice of the stem dilutely milky, the milk not acrid. The whole plant very tender.

Plantations, Edgbaston, amongst old leaves and deep grass; several together. 11th Oct. 1790.—25th Sept. 1791.

VAR. 1. Gills light reddish brown. Pileus dark red brown, center depressed. Stem short.

GILLS fixed, lighter colour than the pileus, numerous, unequal.

PILEUS deep red brown, smooth, circular, depressed in the center, edge turned down, ½ inch over.

STEM solid, short, thick, the size of a reed. *Juice* milky, mild. Specimen and description, (but no habitat,) from Mr. STACKHOUSE.

AGA'RICUS *sub-purpureus*. (BATSCH.) — Gills *violet* brown, numerous, 4 or 8 in a set. Pileus brown, convex, concave with age. Stem violet, bulbous.—

Bull. 439, the lower figures, but they want the purple stem.—Batsch.

74—(but I have not observed the flesh to change to violet when cut.)

GILLS fixed, brown, numerous, tender, 4 or 8 in a set.

PILEUS brown, convex, regular, sinking in the center when old, viscid when moist, fatty when dry, 2 to 3 inches over. *Flesh* spongy, white.

STEM solid, violet colour, scurfy, thickening at the top, bulbous at the base, 2 to 3 inches high, 3-8ths in diameter.

Mr. Bulliard has figured several varieties in the plate referred to above, but I think the upper figures ought to rank under the *Ag. violaceus*, notwithstanding the want of a curtain.

Pastures, Edgbaston.

13th Sept.

fl. in *aliqu* *** GILLS purplish. *cobweb* ^{x3v} AGA'RICUS *glauco'pus*. (SCHÆFF.)—Gills brown, changing with age to a pinky or lilac tinge, 4 to 8 in a set. Pileus chefnut, semi-globular, rather flatted at top, edge rolled in. Stem thick, white or pinky. Curtain cobweb-like.—

Bull. 96; *the habit excellent*.—Schæff. 53, good; Schæff. 42. f. 1. 2. in fig. 3 and 4, the stem too long and slender.

GILLS fixed, brown; when old changing to a pinky or a lilac colour, small for the size of the plant, 4 in a set in the younger, 8 in the older specimens.

PILEUS uniform, pale chefnut, covered with a very glutinous varnish; semi-globular, but a little flatted at the top, and the edge considerably turned in; 4 inches over. *Flesh* white, with a pinky tinge.

STEM solid, whitish, with a pinky or lilac tinge, 2 inches long, 1 inch diameter. Root very large, bulbous.

Curtain like a fine cobweb, whose threads extend from the stem to the edge of the pileus.

Ray *syn.* p. 3. n. 13, has been referred to for this plant, and also for the *Ag. violaceus* of Linn. but though the general description perfectly accords with this species, yet the white Gills, which are repeatedly mentioned, satisfy me that it is a plant different from this as well as from the *violaceus*, which it in no respect resembles, except merely in the colour of the stem. Major Velley justly remarks, that this plant of Dillenius agrees with 2398 of Haller, who refers to Schæff. 38; a plant not now known to exist in England, but probably it will not much longer escape the observation of our botanists.

Ag. bulbosus, fl. Angl. is I believe the plant before me. Mr. Hudson has been censured for making this a species different from the *violaceus* of Linn. but I am satisfied that he has done right, and that his character is sufficient to discriminate them. He does not say, "*lamellis cæruleis*," but "*carulescentibus*," by which I imagine he means that they attain this colour in the progress of growth only, and are not originally so. His "*stipes brevis*," is very expressive, and his character of the Pileus is pretty exact. Had he referred to Schæff. 53, instead of 34, which is the *violaceus*, his readers would have understood him better, and his reference to Ray has only served to increase the misunderstanding. This is one of the Agarics which, as well as some of the Boleti, are much disposed when in pickle, to run into the vinous fermentation.

Plantations, Edgbaston; rare.

5th Sept.

AGARICUS violaceus. (LINN.)—Gills purple, *snuff* numerous, 8 in a set. Pileus purple to brown, convex, edge turned down. Stem purple, cylindrical. —

Ag. stipitatus, pilei margine violaceo tomentoso, stipite cæruleo-lanceolata ferruginea. Fl. suec. 1226.

Schæff. 3. fig. 1. 5. 6, monstrous, but not uncommon varieties.—Bull.

250.—Bolt. 52, tints very deep.—Schæff. 56, monstrous varieties.

—Mich. 74. 1. Buxb. 4. 22, not at all characteristic.—Buxb. 4.

11, a monster, but the description agrees.—(Buxb. 4. 9, certainly not our plant; Batfch. 22, very unlike it.)

GILLS fixed, from pale lilac to deep violet; numerous, 8 in a set; long Gills sometimes cloven.

PILEUS purple, or reddish brown, or purple only at the edge, soft, smooth, firm, convex, but centrally depressed with age, and cracking at the edge, which is always rather turned down; from $\frac{1}{2}$ inch to 5 inches over.

STEM solid, cylindrical, purple, bulbous at the base, from 1 to 4 inches high, and from $\frac{1}{4}$ to 1 inch diameter. Curtain like a cobweb, its fragments sometimes left hanging to the edge of the pileus.

This species differs very much in size, as well as in its tints. In an advanced state the pileus loses its lilac colour and assumes a rust-hue, yet the Gills continue with little or no change of colour. Here I must remark, that a more permanent criterion, as to colour, may be looked for in the Gills, than in any other part of the Agarics in general. Major VELLEY.

Pileus large, circular, slightly convex, colour various, from the deepest purple to a rusty brown. Gills of a beautiful pale purple, unequal lengths. Stem short, thick, solid, swelling at the base. Bulliard remarks a circumstance which I have observed, that in maturity it emits a plentiful powder of the colour of Spanish snuff. Mr. STACKHOUSE.

Edgbaston and Bar plantations, not uncommon. Oct.—Dec. Woods near Bath. Major VELLEY.—Powick near Worcester. Mr. STACKHOUSE.

VAR. 1. Without a curtain. Gills very irregular.

Bolt. 147.—Bull. 439. A.—Schæff. 34.

GILLS violet coloured, irregular in disposition, 2, 3, or 4 in a set, turning brown with age.

PILEUS pale brown with more or less of a violet tinge, smooth, convex and bossed, when fully expanded concave, $\frac{1}{2}$ to 2 or 3 inches diameter.

STEM solid, pale brown with a violet tinge, scored, cylindrical upwards but thickening into a bulb at the base, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high, and $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter.

This

This plant varies very much in size, and the violet tints are very evanescent.

Ag. bulbosus. HUDS.

Bar, Staffordshire. Edgbaston, pastures.

Oct.

It is often found with us in similar situations with the preceding; nor can I consider with Mr. Bulliard that the absence of the Curtain ought alone to constitute a different species.

painted AGA'RICUS *cyaneus*. (BULL.)—Gills brown lilac, numerous, 8 in a set. Pileus bluish green, gently convex, edge a little turned down. Stem bluish green, scored, crooked. Curtain white.—

Bull. 170.—Bolt. 30.

GILLS fixed, brown lilac, white within, generally 8 in a set, but in some large specimens the 2 longer series of Gills divide towards the edge of the pileus, and then the small Gills are not to be found.

PILEUS conical when young, at full growth nearly flat, but a little turned down at the edge; cracking in the center with age; bluish green, viscid, 2 to 3 inches over. *Flesh* white.

STEM solid, bluish green, whitish with scurf when young, crooked, scored, 2 to 3 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. *Root* bulbous. *Curtain* white cottony.

It is remarkable that when the green viscid mucilage is scraped off the pileus, or wears off in its more advanced age, the real colour appears, which is nearly that of copper. Also that the Gills are white when their cover of purple paint is removed. The whole skin of the pileus easily strips off and shews the white flesh underneath.

Rookery, in Edgbaston Park.

Oct. Nov.

garden * AGA'RICUS *torilis*. Gills purplish flesh-colour, few, 4 in a set. Pileus red brown, convex, turning up with age. Stem dusky, flesh-colour.—

Bolt. 41. A.

GILLS fixed.

PILEUS dark reddish brown, convex, changing to flat, and then turned up, the edge crumpled and distorted in various modes, 2-8ths to 3-8ths of an inch over.

STEM solid, $\frac{1}{4}$ of an inch high, 1-10th in diameter. BOLTON.

Rich garden mould, about the roots of umbrageous plants.

***** GILLS buff.

summer AGA'RICUS *calyciformis*. Gills buff, very numerous, 4 or 8 in a set. Pileus brown buff, entirely inverted. Stem pale brownish buff.—

Batsch.

Batsch. 118, (represents our plant, but the Gills in ours are not split, nor have they the least degree of decurrence.)

GILLS fixed, buff, changing to snuff-coloured brown; very numerous, 4 or 8 in a set.

PILEUS brownish buff, deepest in the center, wholly turned up, 1 to 2 inches over.

STEM solid, but becoming hollow with age, pale brownish buff, 2 inches high; thick as a raven's quill.

The whole pileus is turned up so that the plant appears like a rummer glass. I never happened to detect it with the pileus otherwise than as described, so that its convex or flat state is probably of short continuance. It requires a further examination.

Plantations in Edgbaston Park.

5th Nov. 1790.

* *AGA'RICUS il'litus*. Gills buff, narrow, few, 4 in a set. Pileus nearly flat, leathery, livid tawny. Stem buff, rather thick.— *gluey*

GILLS fixed, light buff, 4 in a set, but irregular, very narrow, very thinly set, curling up in drying, and adhering so closely to the under surface of the pileus, by means of a gelatinous matter with which the plant abounds, that each gill assumes the appearance of a hollow tube.

PILEUS tawny, inclining to a leaden hue, smooth, of a thick leathery texture, but not fleshy, 1½ inch diameter.

STEM solid? light buff, thick for the size of the plant. Major VELLEY.

In a pine grove by the sham castle on Claverton Down, near Bath, but rare. Major VELLEY.

AGA'RICUS ru'ber. Gills buff, 4 in a set. Pileus orange-red, orange red, flat, border turned down. Stem reddish, cylindrical. Juice milky, mild.— *orange-red*

GILLS fixed, pale buff, numerous, 4 in a set.

PILEUS full brick red, to chestnut, flat, but the center depressed, and the edge turned down; 1 to 2 inches over.

STEM solid, red, cylindrical, strong, 2 inches high, 3-8ths diameter.

Specimen, drawing, and description, from Mr. STACKHOUSE, who found it in woods near Bath; Comb Green. Oct. 1798.

* VAR. 1. Stem much paler than the pileus. Juice yellow.

Bolt. 9; (not Schaff. 73.)

Woods about Halifax.

Oct. Mr. BOLTON.

***** GILLS yellow.

many stemm'd * *AGARICUS conna'tus*. Gills pale yellow, 4 in a set. Pileus convex, pale yellow, centre tawny. Stem cylindrical, smooth, dirty buff. —

Bolt. 148. (Mich. 79. 4, is a very different plant; and Sterb. 25, more like *Ag. fascicularis*.)

Varies much in size. It is a rare species.

GILLS fixed, arched, narrow, pale yellow, 4 in a set.

PILEUS convex, thin, $\frac{1}{2}$ to 2 inches over. Curtain pale yellow, fugacious.

STEM solid, readily splitting, 3 inches high, $\frac{1}{4}$ inch diameter; several from one root, which is long, taper, fibrous. BOLTON.

Ag. ramofo-radicatus. BOLT. 148.

Plantations, Fixby Hall, and near Darlington.

brittle * *AGARICUS fra'gilis* (LINN.)—Gills yellow, 4 in a set. Pileus and Stem golden brown. —

Ag. stipitatus, pileo convexo viscido pellucido, lamellisq[ue] luteis, stipite nudo.

Vaill. par. xi. 16. 17. 18.—Schæff. 230.

GILLS fixed, yellow, 4 in a set; long ones 16 or 18.

PILEUS rich brown yellow, viscid, convex, at first pointed then dimpled in the centre, sides scored, 2 to 3-8th of an inch over.

STEM solid, pale or rich brown yellow, tender, watery, viscid, $1\frac{1}{2}$ inch high, not thicker than a large pin. VAILL. SCHÆFF.—Stem tall in proportion, generally curved, smooth. Pileus thin, without flesh, thence transparent; and from the Gills being visible through it, striated. Gills narrowing at each end. Mr. WOODW.

—Very like *Ag. parvus* in its external appearance, and the places of growth are the same, but differs essentially in structure according to the authors from whom the preceding particulars are taken.

Woods and hedges amongst moss and fallen leaves. [Pine Grove at Kirby, Norfolk, on moss. Mr. WOODWARD.] Aug.—Oct.

brown yellow * *AGARICUS squamo'sus*. (SCHÆFF.)—Gills yellowish, toothed, 4 in a set. Pileus brown yellow, convex but irregular, ragged with scales. Stem brown yellow, scaly. —

Schæff. 29 and 30.

GILLS fixed, whitish yellow, toothed or notched at the edge.

PILEUS brown or greyish yellow, scaly, convex but very irregular in shape, sometimes hollow in the center, 3 inches over.

STEM

STEM solid, brown yellow, scaly, irregular in shape, $1\frac{1}{2}$ to 3 inches high, $\frac{1}{2}$ inch or more in diameter. SCHÆFFER.—The hard scaly texture of the Pileus and stem, together with the indented Gills, well characterised in Schæffer's figures. Major VELLEÏ.

Ag. squamofus. HUDS. 614. 17.

Old trees in Ditchingham. RELHAN. Fl. Cantab.—On decayed trees, particularly on old willows. Aug.—Nov.

* AGARICUS *peronatus*. (BOLT.) — Gills pale *spatter dashed* watery straw colour, 4 in a set. Pileus brown, hemispherical, semi-pellucid. Stem, its lower half cloathed with yellow wool.—

Bolt. 58.

GILLS fixed, few, thin, narrow, pellucid, 4 in a set.

PILEUS like a mixture of brown and white wool, thin, without flesh.

STEM solid, firm, tough, pale straw colour, upper part cylindrical; smooth, lower half surrounded with a cottony or woolly substance of a bright yellow colour; 3 inches high, thick as a raven quill. BOLTON.

A rare species. In the deep and moist parts of woods near Halifax. BOLT.—[In the Abbey Wood, at Flixton, Suffolk, and Earham wood, Norfolk. Mr. WOODWARD.]

* VAR. 1. Gills pale brownish yellow. Pileus and stem pale yellow.

Schæff. 77.

GILLS numerous, narrow.

PILEUS whitish, flat, thin, edge turned down, 1 or $1\frac{1}{2}$ inch over.

STEM solid, cylindrical, whitish yellow, near 2 inches high, thick as a raven's quill. Smells like hawthorn. Description and drawing from Mr. STACKHOUSE.

Woods near Bath.

* VAR. 2. Gills pale whitish yellow. Pileus yellowish white, flat. Stem tapering upwards, rust-coloured and woolly below.

Bull. 158 and 524. 1.

GILLS unequal.

PILEUS flat, 1 inch over, often depressed in the middle and waved at the edge.

STEM solid, 3 or 4 inches high, thick as a duck's quill, and covered with rust coloured wool below, tapering and thinner upwards. It has a strong smell of garlic. Mr. STACKHOUSE.

Woods near Bath. Bagley Wood, Oxfordshire, in company with Major VelleÏ and the Hon. Mr. Wenman. Mr. STACKHOUSE.

rigid * AGARICUS *oedemato'pus*. (SCHÆFF.)—Gills pale brownish yellow, few, fleshy, in pairs. Pileus reddish brown, conical, edge turned in. Stem dirty brown, thickest in the middle.—

Bolt. 43.—Schæff. 259; colours richer.—(Not Bull. 76; nor Batsch.

15.—Fl. dan. 833. 1, is *Ag. aurantius*.)

GILLS fixed, pale yellow, narrow, brittle, crumpled.

PILEUS dusky reddish brown, conical, edge turned in, crumpled, waved, splitting, 2 inches from the edge to the top of the cone. *Flesh* thick, dry, white.

STEM solid, brown grey, hard, dry, brittle, thickest in the middle, 5 or 6 inches high, and 1 inch or more in diameter in the thickest part. BOLTON.

Ag. rigidus. BOLT.

Plantations and wood grounds about Fixby Hall. July, Aug.

imperial AGARICUS *cæsa'reus*. (SCHÆFF.) — Gills golden yellow, 4 in a set. Pileus fine lake red, to rich orange buff, convex, bossed. Stem buff and rose, tapering upwards.—

Schæff. 247.—Baltar. 4. *C. just* broke forth from its wrapper.—Mick.

77. 1.—Clus. hist. 272. 273.

GILLS fixed, bright golden yellow, just under the edge of the pileus nearly orange, very regularly disposed 4 in a set; none of them branched; fleshy, brittle, ferrated at the edge with a paler cottony matter.

PILEUS fine lake red, changing with age to a rich orange and buff, and every intermediate shade of these colours which render it strikingly beautiful; convex, center bossed, edge turned down, 3 to 4 inches diameter, clothly to the touch. *Flesh* pale buff.

STEM solid, nearly cylindrical, but gradually tapering upwards, rich buff, shaded with fine rose red; 3 to 5 inches high, $\frac{1}{2}$ inch diameter. *Flesh* pale buffy, spongy, elastic.

Juice milky, not at all acrid, very plentiful. The most splendid of all the Agarics. It is common in Italy, and is brought to the markets for sale. The ancient Romans esteemed it one of the greatest luxuries of the table. It having been made the vehicle for poison to Claudius Cæsar, by his wife Agrippina, it has been celebrated by the satiric pen of Juvenal, and the epigrammatic muse of Martial. See Schæffer, p. 65, chiefly taken from Clus. hist. 273, where the reader will find several other curious circumstances respecting it.

This plant must be very rare in this country, as it is unnoticed by any of our botanists. It was first found by my daughter in the Red Rock plan-

plantation at Edgbaston, several growing together of different ages and sizes; in a dry soil, where either a larch or a fir tree had been cut down 4 years before. A few days afterwards we found it again in company with Mr. Stackhouse, but none of our specimens were found with either curtain or ring. The specimens first gathered afforded a milky juice in greater abundance than I had ever seen in any other species, but these the next day shewed no signs of milk, neither were those gathered a few days afterwards on the same spot, at all lactescent. This first taught me that the circumstance could not be relied on as a specific distinction. It is described and figured by Clusius as being involved in a wrapper or volva, when young and about the size and shape of an egg. The curtain, and its remains on the stem in form of a broad permanent ring, are also noticed by the authors referred to above, so that notwithstanding the defect of these parts in our specimens, there can be no doubt of their existence in others.

Red Rock plantation, Edgbaston. 6th July, 1791. Fir plantations Tettenhall, Staffordshire, amongst moss. July, 1792.

* *AGARICUS xerampeli'nus*. (Scop.)—Gills golden *purple* yellow, 2 or 4 in a set. Pileus convex, clothed, purple to brown yellow. Stem cylindrical, thick, brown yellow or pinky brown.—

* VAR. 1. Pileus rich dark reddish brown; Stem brown red. Mr. STACKHOUSE.

* VAR. 2. Pileus and stem golden brown. Mr. STACKHOUSE.

* VAR. 3. Pileus rich red purple. Stem dusky gold colour.

Bolt. 14.

* VAR. 4. Pileus rich red brown, stem pinky.

Schæff. 214, 215, a *proliferous variation*.—Schæff. 219, and 254, are other varieties of this species, but I have no evidence that they have been found in this island.

GILLS fixed, not crowded, strong, fleshy, brittle, serrated on the edge with a brownish colour.

PILEUS globular, bloomy purple, clothed to the touch, 3 inches diameter. *Flesh* thick, brittle, white.

STEM solid, but spongy, 3 inches long, 1 inch diameter, dusky gold colour, brittle, pale yellow within. BOLTON.—Gills bright yellow, turning brown in decay, fleshy. They have, when discharging their seeds, rather a fringed than a serrated appearance. Pileus of the rich reddish brown colour so commonly seen in vine leaves in the autumn, its name therefore admirably expressive. It is one of the most elegant of the Agarics when in perfection. Mr. WOODWARD.—Gills always of a bright

gold colour. *Pileus* of various tints, from reddish purple to rich brownish yellow; flat, often depressed in the center, edge turned down; clothed. *Stem* thick, large, clothed to the feel, purple. Often found in clusters. Mr. STACKHOUSE, who discovered and sent me three beautiful drawings of it, prior to its appearance in any English publication. *Pileus* from 2 to 5 inches over, deep saffron colour blended with purple tints, but often of a red brown and purplish. *Gills* constantly yellow, rather broad and full. *Stem* thick, from 1 to 4 inches long. Major VELLEY.—I apprehend that this will prove to be only a variety of the preceding species. The want of milky juice, the small difference in the colour of the fructifications serrating the edges of the *Gills*, the white flesh, the deviations in the shape and size of the stem, and the variations of the tints of the stem and pileus, are hardly sufficient, in my opinion, to constitute a specific difference.

[Fir plantations near Bath; Fir woods at Clowance, Cornwall. Mr. STACKHOUSE.—Major VELLEY.—Pine grove, Ditchingham. Mr. WOODWARD.] Aug.

§ III. SOLID and LOOSE.

* *GILLS* white.

bulbous

AGA'RICUS *bulbosus*. (SCHÆFF.) — *Gills* white, irregular. *Pileus* convex, white. *Stem* cylindrical, white.—

Bull. 364.—*Schæff.* 241.—*Bolt.* 48.—*Battar.* 6. A.

GILLS loose, white, or watery white, very numerous, irregular, but mostly in pairs, the short ones very unequal in length, and sometimes not present.

PILEUS white, at first nearly semi-globular, cracking across as it expands further, sometimes fringed at the edge with the remains of the curtain, smooth, 4 or 5 inches over. *Flesh* white, spongy, very thick.

STEM solid, irregularly hollow with age, white, cylindrical, smooth, rarely quite straight, 4 inches high, $\frac{1}{2}$ inch or more in diameter.

Ring permanent, broad, white.

This is one of those Agarics which possesses all the parts belonging to the Genus, and being on a large scale, is well fitted for instructing the learner to understand them. In its embryo state it is inclosed in a wrapper, and is equal in size to a large pullet's egg. If this be cut through vertically, the section brings to view the *Gills*, the pileus, the stem as yet imperfectly formed, and the curtain extending from the stem to the edge of the pileus, the remnants of which

which in a more advanced state of growth, are sometimes observable fringing the edge of the pileus, and always forming a broad ring round the upper part of the stem. A good drawing of it in its egg-state may be seen in Bulliard, pl. 364. A.

It is subject to several other trifling variations:

1.—Center bossed, surface very viscid, changing to pale ash-colour.

This happens principally in the autumn.

2.—Proliferous; another smaller one of the same growing on the pileus of a larger plant. This I have seen happen when growing in the rank soil of a hot bed in the middle of summer.

It may be found from spring to the end of autumn in rich soil. Not unfrequent in gardens, particularly on the sides and the base of hot beds. I have seen it on a mushroom bed with the *Ag. campestris*.

* VAR. 1. Pileus dusky mouse, set with warts of rather a paler colour.

Bull. Ag. solitarius.—Bolt. 47.

Gills 4 in a set, but irregular. Stem 4 or 5 inches high; the curtain remaining on it. BOLT.

Ag. verrucosus. BOLT. but none of his synonyms.

In woods about the roots of trees, but rare. In the Shroggs opposite Birks Hall. BOLT.

* VAR. 2. Pileus scarlet, with white blotches, the fragments of the inner wrapper.

Bolt. 46.

Gills loose, 4 in a set. Pileus convex, smooth. Flesh thick, white, brittle. Stem firm, solid, brittle, cylindrical, white. Curtain white, forming a permanent ring. BOLTON.

Ag. nobilis. BOLT.

In a plantation at Mill's Bridge, near Huddersfield.

* AGA'RICUS *confer'tus.* (BOLT.)—Gills brownish *stove* white, thin, uniform. Pileus white, conical, cottony. Stem white, tapering upwards.—

Bolt. 18.—(Not Bull. *Ag. digitaliformis*, for that has a hollow stem.)

GILLS loose, uniform, numerous, thin and delicate, white, with a faint tinge of pale brown.

PILEUS conical, pointed, white, yellowish brown at the apex, smooth, light, cottony; withers in decay, from $\frac{1}{2}$ to 1 inch in diameter at bottom, and as much in height.

STEM solid, white, gently tapering upwards, 2 inches high, thick as a swallow's quill. Curtain white, very evanescent. BOLTON.

Amongst bark in hot houses.

Nov. 1785.

white * AGA'RICUS *al'bus*. (BOLT.)—Gills white, numerous, 4 in a set. Pileus white, bluntly conical, brown at the top. Stem white, tapering upwards.—

Bolt. 153.—(Schaff. 256, is a variety with Gills in pairs and Pileus flat at the top.)

GILLS loose, thin, pliable.

PILEUS smooth like vellum, milky white, $1\frac{1}{2}$ inch to the apex of the cone. *Flesh* white, thin.

STEM solid, pure white within and without, largest at the bottom, decreasing gradually upwards, splits into fibres; 5 inches high, $\frac{1}{2}$ inch diameter at the bottom, $\frac{1}{4}$ at the top. BOLTON.

Sheep croft at Stannary near Halifax, and elsewhere in sheep pastures.

Aug.

* VAR. I. Gills few. Pileus wholly white.

Bull. 256.—Bolt. 155.

GILLS loose, white, soft, few, 4 in a set.

PILEUS convex, or rather bluntly conical, white, thin, $\frac{1}{2}$ to 1 inch over.

STEM solid, white, thick as a crow quill, but much thicker downwards where it is sometimes tinged with red; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high. BOLTON.

Ag. alumnus. BOLT.

On old plants of Ag. integer and other species of Fungi, but rare.

resplendent AGA'RICUS *splen'dens*. Gills pure white, numerous, 2 or 4 in a set. Pileus like tarnished copper, glossy, bluntly conical. Stem brownish white, tapering upwards.

GILLS loose, very white, very numerous, thin, and tender, throwing out an abundance of dust-coloured seeds from the edges, and then changing to a pinky white.

PILEUS colour of tarnished copper, with a metallic lustre, beautifully glossy, scarcely viscid, apparently streaked, or fibrous like smoothly combed hair, smooth to the touch, bluntly conical, edge parallel to the stem, from 3 to 7 inches over. *Flesh* very white, tender and spongy, cracking when fully expanded.

STEM solid, white, with longitudinal pale brown rising lines, regularly tapering upwards, 4 to 6 inches high, near an inch diameter at bottom and half as much at top. *Flesh* tender, juicy, spongy.

This must be a very rare species, as its size and the metallic splendour of its Pileus cannot fail to attract the eye, and yet there does not appear to be any figure of it.

On a rotten Alder stump by the side of the pool in Edgbaston Park,

26th July, 1792.

* **AGA'RICUS** *radicatus*. (RELH.)—Gills white, few, *long-rooted* 4 in a set. Pileus brownish, bluntly conical. Stem brown, tapering upwards. Root very long.—

Bull. 232 and 515.

GILLS loose, white, few, distant, 4 in a set.

PILEUS brownish or dirty white, rather bell-shaped, not fleshy, almost pellucid, edge rather bent in, but with age turning up, 3 to 4 inches over, or more.

STEM solid, rather woody, 4 to 6 inches high, thick as a goose quill, gradually thickening from the Pileus down to the ground, then penetrating the earth in form of a long root tapering downwards. RELHAN n. 1040.—Stem covered with a thick down, of a reddish brown colour; 5 or 6 inches high; gradually increasing in thickness to the ground, and then tapering to a spindle-shaped root which penetrates deep into the earth. I raised it to more than the length of the stem above ground without obtaining the whole root. Pileus about 4 inches over, pale brown or dirty white, almost transparent, being absolutely without flesh; the edge rather bent in. Gills few, white, broad, 4 in a set, none of them reaching the stem. Upon comparing the description of Mr. Relhan with the above, which was drawn up some time before the publication of his supplement, it cannot be doubted but the plants are the same. Bulliard's plate 232 agrees, except that the Pileus is described as downy, and the stem is longitudinally striated; but as from its woody substance it shrinks and somewhat twists in drying, this appearance in the figure may be occasioned by that circumstance. Mr. WOODWARD.

Solitary; in the margins of cornfields, at Mettingham, and Homersfield, Suffolk; on a strong clayey soil. Mr. WOODW.—Also a good drawing and description sent me by Mr. Stackhouse, but without a place of growth.

* VAR. I. Stem not 2 inches high, swelling out to the size of a finger. Root 14 inches long, and large in proportion, RELHAN. suppl. ii. p. 25.

Pastures and plantations.

Sept.

AGA'RICUS *orcadus*. (BOLT.)—Gills brownish *fairy-ring* watery white, 2 or 4 in a set. Pileus pale brown, convex, irregular. Stem whitish, browner with age, very tough, rarely central.—

Bull. 144; but the plate has too much appearance of a finished smoothness, and is too highly and too uniformly coloured. There is no characteristic drawing extant.—Battar. 21. E. gives a good idea of it in its more advanced state; but I know it to be really a very different plant, and as such, shall refer to it in its proper place.

GILLS

GILLS loose, (but the part attached to the pileus juts up very close to the stem, so as to give them almost the appearance of being fixed) watery brownish white, 2 or 4 in a set, the small ones often very minute, and the large ones sometimes splitting at the outer end; not numerous, rather broad for the size of the plant; frequently connected to the pileus by ligaments.

PILEUS pale buffy brown, convex, irregular, a sudden depression of the border, at some distance from the center, often giving the appearance of a large rounded boss in the middle; central colour generally deeper, 1 inch to $1\frac{3}{4}$ over; edge turning up with age.

STEM solid, white, changing to watery brown, cylindrical, but thicker and flattened just under the pileus, very tough, mostly crooked, twisted when dry, rarely central, $1\frac{1}{2}$ inch high, thick as a crow quill.

RAY Syn. 6. 27.—Ag. pratensis. 25. Huds.—Ag. coriaceus. 12. **LIGHTFOOT**.—But neither of these names could be preserved, having been, and not improperly, previously applied to other species.

Edgbaston, hedge banks, pastures, in small or large patches, particularly in fairy rings.—Abounds in upland pastures, and sheep commons. Mr. **STACKHOUSE**. Sept. Oct.

VAR. 1. Gills cream-colour. Pileus buff. Stem mealy.

Pastures, Edgbaston.

20th May, 1792.

Sometimes the pileus is as much as 3 inches in diameter.

In fairy rings on the ground sloping down to Hockley pool, and on a piece of grass land sloping to the South in the pleasure ground of Mr. Boulton, at Soho.

2d June, 1792.

* **VAR. 2.** Pileus yellow brown, more fleshy, more regularly convex.

Mr. **WOODWARD**.

Bolt. 151.

Mr. Woodward observes that this variety is found in groves; that the stem retains its usual colour and toughness. He says also that this species has a much higher flavour than the common mushroom, but probably from its leathery nature is indigestible, except in the form of powder, in which it is admirable. I have seen the pileus and gills of this Agaric very brittle and tender when fully saturated with moisture in rainy seasons, and in that state it is sufficiently digestible. It is not, as Mr. Lightfoot has supposed, the *Mouceron* of the French, though often used in France instead of that. Mr. Bulliard informs us that it is used in ragouts, that its flavour is equal to that of the true *Mouceron*, but that it is more tough.

I am satisfied that the bare and brown, or highly clothed and verdant circles, in pasture fields, called *Fairy Rings*, are caused by the growth of this Agaric. We have many of them in Edgbaston Park, on the side of a field sloping to the South West, of various

sizes;

sizes; but the largest, which is 18 feet diameter, and about as many inches broad in the periphery where the Agarics grow, has existed for some years on the slope of an adjoining pasture field, facing the South. The soil is thin, on a gravelly bottom. The larger circles are seldom compleat. The large one just now described is more than a semi-circle, but this phænomenon is not strictly limited to a circular figure. Where the ring is brown and almost bare, upon digging up the soil to the depth of about 2 inches, the spawn of the Fungus will be found, of a greyish white colour, but where the grass has again grown green and rank, I never found any of the spawn existing. A similar mode of growth takes place in some of the crustaceous Lichens, particularly in the *L. centrifugus*.

As this Agaric may be procured plentifully, and as its fine flavour will probably soon introduce it to our tables, particularly in catchups and in powder, forms in which its toughness is no objection to its use; I imagine it may be of some consequence to guard against errors in those who gather it, or in those who direct it gathered; and as much confusion and many mistakes have hitherto existed amongst authors on the subject of this very common plant, I shall now, in addition to the particular description given of it above, subjoin a list of the figures erroneously quoted as representing it, pointing out wherein they differ from it.

Ag. mouceron. Bull. 142. This is very unlike our plant, it has a very thick and fleshy pileus, its Gills are extremely narrow and numerous, and its stem is thick and short. Not to mention that the Gills too are fixed to the stem.

Ag. leucocephalus. Bull. 428. 1. This is a much larger plant, has a fixed Gill, a much thicker, and a brittle stem, but the toughness of the stem in our plant is such as is nearly alone sufficient to distinguish it.

Battar. 22. C. Not to mention other marks of difference, this has a hollow stem.

Ag. melleus. Schæff. 45. This has a fixed Gill, and a hollow stem.

Ag. pallidus. Schæff. 50. This is indeed very unlike our plant; it has a thick fleshy pileus, a thick stem, and decurrent Gills.

Ag. farinulentus. Schæff. 205. This has a hollow stem, a powdered pileus, and a dirty brown gill.

Ag. collinus. Schæff. 220. This has a hollow stem, otherwise it is not much unlike it; but the stem is too thick for our plant, and the boss upon the pileus is very peculiar.

Ag. niveus. Schæff. 232. Differs very widely indeed, having a pileus concave in the center, a hollow stem, and a very decurrent Gill.

Ag. præaltus. Fl. dan. 830. 1. This figure has some general resemblance, and the decurrent Gills may be only apparently so from the

the turning up of the pileus in the advanced age of the plant. The author however refers to Battar. p. 46. t. 21. fig. F. and here we find that this is a very large species indeed, well agreeing with the trivial name *præaltus*, but the figure gives no such idea. I have referred to Ray Syn. p. 6. n. 27, for our plant, but a very respectable authority has lately given this species of Ray to the *Ag. sordidus*. I confess that the short character given by Mr. Ray is so imperfect as to admit of various applications, though his usual sagacity did not desert him when he mentions its leathery texture. But this alone would not have been sufficient. Fortunately he subjoins an English name, *Scotch bonnets*, from which, those who are intimately acquainted with the habit of the fairy-ring Agaric, will immediately acknowledge it.

cushion * *AGA'RICUS pulvina'tus*. (BOLT.)—Gills greyish white, 4 in a set. Pileus convex, brown mouse. Stem dark grey, tapering upwards. Wrapper permanent.—

Bolt. 49; (but none of his synonyms.)

GILLS loose, the 2 smaller series lopped.

PILEUS when fully expanded flattened at the top like a cushion; edge strongly scored; 3 or 4 inches over. *Flesh* white, spongy.

STEM solid, dark grey, nearly cylindrical but thicker at the bottom, which is inclosed in a permanent wrapper; 3 to 4 inches high, near $\frac{1}{2}$ inch diameter. BOLTON.—The colour of the Gills not mentioned in the description, but if grey white as represented in the figure, it cannot be the same plant as Mr. Bulliard's *Ag. volvaceus*, pl. 262, which has white Gills when young, changing to salmon colour when in maturity.

Woods and moist shady places about Halifax, but rare. Sept.

horizontal * *AGA'RICUS horizonta'lis*. (BULL.) — Gills yellowish white, 4 in a set. Pileus yellowish brown, convex, not fully circular. Stem bent horizontally.—

Bull. 324.

GILLS loose, contiguous to the stem but not fixed to it, yellowish white, few, rounded at the edge, 4 in a set, the smaller series very minute.

PILEUS convex, yellowish brown, almost semi-orbicular, smooth, shining, 1 inch broad.

STEM solid, little more than $\frac{1}{2}$ inch long, central, but immediately bent so as to be parallel to the Pileus, and inserted into the crevices of the bark on which it grows; in thickness equal to a swallow's quill.

I have frequently been deceived in gathering this plant, the stem from

from its mode of growth, not being easily seen, I have supposed it to be a dimidiated Agaric until it was pulled. Mr. Woodward. On old trees at Mettingham, and elsewhere, near Bungay. Mr. WOODWARD.

AGA'RICUS *clavus*. (LINN.)—Gills white, in pairs. *nail-headed* Pileus with a dimple in the center, pale orange. Stem solid, pale orange.—

Shæff. 59. *very good, but rather larger than my specimens.*—*Bull.* 148,

B. C. D.—*A. is another species.*—*Vaill.* xi. 19. 19. 20.—

Bolt. 39. B.

GILLS loose, in pairs, white, about 20 of each sort.

PILEUS pale orange, convex, with a dimple in the center, from 1-10th to 3-10ths of an inch over.

STEM solid, pale orange, semi-transparent, from $\frac{3}{4}$ to 1 inch high, not thicker than a pin.

This is a Linnæan species, but I omit the character in the Fl. Suec. as it is evident that the author had confounded two different plants together. In the Sp. pl. ed. 3. the erroneous part of the reference to *Vail. Par.* is thrown out, but the whole of the error is not yet removed.

Ray *Syn.* 9. 44, has been supposed to be this plant, but the conical pileus does not justify that opinion.

Common amongst moss and old leaves.

July.

AGA'RICUS *avella'neus*. Gills white, numerous, *hazel-nut* irregular. Pileus rich reddish yellow, gently convex. Stem brown yellow.—

GILLS loose, white, with something of a yellowish cast; thin, numerous, 3 or 4 in a set, and often several long ones together.

PILEUS the colour of a fresh gathered ripe hazel nut; gently convex, rather bossed, thin at the edge, $2\frac{1}{2}$ inches over. *Flesh* whitish, with a tinge of the nut colour.

STEM solid, gently tapering upwards, brown yellow, flecked with a scurf of a redder colour; 4 inches high, near $\frac{1}{2}$ inch diameter.

This species I believe was first found in England about 3 years ago, by Mr. Knapp, who then sent me an account of it, observing that it gave a greasy appearance to the paper in which he had preserved it. On making further enquiries concerning it, he favoured me in March last with a drawing made from his dried specimen, and also the following observations—Gills white. Pileus nearly flat, of a nut colour, with an extremely fine woolliness. Stem tawny, rather scored, not hollow. Mr. KNAPP.—I imagine it is a rare plant, as Mr. Knapp has not found it since, though its size and the length of its stem, as well as the elegance of its appearance, render it sufficiently

ently observable. A single specimen was gathered in this neighbourhood, and brought to me this morning.

[Shenley, Bucks. Mr. KNAPP.]—On the West side of Moseley Common, near Birmingham.
6th July, 1792.

St. George's

* AGA'RICUS *Geor'gii*. (LINN.)—Gills yellowish white. Pileus yellow, convex, hollow in the center. Stem yellow, thickish, smooth. Juice yellow.—

Ag. stipitatus, pileo flavo convexo, lamellis albis. *Fl. suec.*

Clus. ii. 264. 2, *cop. in J. B.* iii. 824. 2, the upper figure copied in *Park.* 1317. 4.—*Sterb.* 4. C. (not 11. 3.)

Gills loose. Pileus brimstone coloured, 4 inches over. Stem solid, irregularly hollow with age. LINN. CLUS. HALLER.—Pileus striated and hairy at the edge, white, changing to yellowish, and reddish yellow when old; but the Gills do not lose their whiteness. Stem short, thick, woolly. GLEDITSCH. — Juice yellow. HUDSON.—If wounded bleeds plentifully with a yellow juice.

This species is introduced on the authority of Mr. Hudson and Mr. Relhan. I cannot collect the exact description of the Gills from any of the authors who have mentioned it, but from the general structure of the plant it is probable that they are loose.

Woods and pastures.

Sept.

* VAR. 1.

Mr. Stackhouse had repeatedly mentioned to me a large esculent Agaric found on the sea-coast in Cornwall, which is, I believe, a monstrous variety of this species. Its whole habit is very large, the button as big as a potatoe, the expanded pileus 18 inches over, the stem as thick as a man's wrist, the Gills very pale; the *Curtain* as tough and as thick as a piece of leather, the juice yellowish; the flavour inferior to that of the *Ag. campestris*. And he has very lately informed me that it corresponds with the description of *J. B. hist.* iii. p. 824, cited by Linnæus under *Ag. Georgii*. It was probably a plant of this kind, which was mentioned to me by a gentleman of undoubted veracity, as having been gathered some years ago on an old hot-bed in a garden in Birmingham, and weighed 14 pounds.

On the sea coast or commons, Weymouth, Devonshire, and West of Cornwall. Mr. STACKHOUSE.

** GILLS brown.

bay

* AGA'RICUS *ba'dius*. (SCHÆFF.) — Gills pale brown, uniform. Pileus orange brown, rather bossed. Stem pale cinnamon, with a permanent wrapper at the root.—

Schæff.

Schæff. 245.—Bolt. 38. 2.—(Mr. Bolton refers to Schæff. 95, which possibly may be the same, and also to Schæff. 211, which must be a mistake.)

GILLS loose, uniform, broad, distant, pale cinnamon brown.

PILEUS bright brown inclining to orange, smooth, streaked near the edge, 3 inches over.

STEM solid, hollow with age, pale cinnamon, smooth, tapering upwards, 4 inches high, $\frac{1}{4}$ inch diameter, surrounded at its base by a permanent wrapper which splits into 3 lobes. BOLTON.

Ag. trilobus. BOLTON.

Dry woods about Halifax.

Aug.

* AGA'RICUS *palma'tus*. (BULL.)—Gills red *eccentric* brown, 4 in a set, but irregular. Pileus deeper brown red, flat, oblong. Stem reddish white, eccentric.—

Bull. 216.

GILLS, long ones terminating on a membrane which prevents their adherence to the stem; few in number, very irregular. BULLIARD.
—Unequal, lighter coloured than the pileus.

PILEUS brown red, flat, membranaceous, edge turned down.

STEM solid, strong, inserted near the edge of the pileus. Substance very leathery and tenacious. The place of growth is very particular, viz. on the perpendicular side of a post, out of a knot in the solid undecayed wood, pointing first horizontally and then turning upwards. Description and drawing from Mr. STACKHOUSE.
—M. Bulliard says it is found in autumn on the squared sides of timber, and also on trees both healthy and decayed, at the height of 60 or 80 feet.—In Mr. Stackhouse's drawings the pileus is about $1\frac{1}{2}$ or 2 inches over; the stem about 1 inch high, and $\frac{1}{4}$ diameter, but the figures of M. Bulliard are much larger, and more of a brown colour.

*** GILLS red.

* AGA'RICUS *ru'bens*. (BOLT.)—Gills ruby red, *ruby* 4 in a set. Pileus dark red, gently conical. Stem bright red.—

Bull. 202.—Bolt. 36.—Fl. dan. 715.

GILLS loose, thin, transparent; when held between the eye and the light, of a glowing ruby colour, regularly 4 in a set.

PILEUS gently conical, fine dark red, cottony to the touch, $1\frac{1}{2}$ inch over.

STEM solid, strong bright red, hard, seldom straight, 4 or 5 inches high, thick as a goose quill. BOLTON.

Ag.

Ag. coccineus. Bulliard, but not Schæffer 302. *M.* Bulliard's name is rejected because previously appropriated by Scopoli to another species. Indeed the same reason exists against Mr. Bolton's name, but that the species which Scopoli has called *rubens* is a variety of *Ag. muscarius*.

In a wood belonging to Shibden Hall, near Halifax, and not elsewhere. O&.

orange **AGA'RICUS** *aurantius*. Gills loose, pinky flesh colour, 4 in a set. Pileus pale pink. Stem pinky white.—

Ag. aurantius. VAR. 3. See HOLLOW and FIXED.

Mushroom **AGA'RICUS** *campestri*s. (LINN.) — Gills pinky, changing to liver colour, crowded, irregular. Pileus convex, white to brown. Stem white, cylindrical. Curtain white.—

VAR. 1. Pileus smooth, or only a little scaly when old.

Bull. 514.—*Bull.* 134.—*Fl. dan.* 714.—*Bolt.* 45.—*Mill. ill. t.* 106.

—*Lob. ic.* 271.—*J. B. hist.* 3. 824.—*Garf.* 279. 1.—*Sterb.* 1.

—*Schæff.* 310. 311.

GILLS loose, pinky red, changing to liver colour, in contact but not united with the stem; very thick set, irregular in disposition, some forked next the stem, some next the edge of the pileus, some at both ends, and generally in that case excluding the intermediate smaller Gills.

PILEUS white, changing to brown when old, and becoming scurfy; regularly convex, fleshy, flatter with age, 2 to 4 inches diameter, liquefying in decay. *Flesh* white.

STEM solid, white, cylindrical, 2 to 3 inches high, $\frac{1}{2}$ inch diameter.

Curtain white, delicate.

Such are the more common kind, in this part of England, which are so much in request for the table. They differ very much in size; I gathered one whose pileus measured 9 inches over. The field plants are better for eating than those raised on artificial beds, the flesh of the latter being far less tender.

Ag. stipitatus, pileo convexo squamato albedo, lamellis rufis. *Fl. Suec.* 1203.—*Ray Syn.* p. 2. n. 1.

In parks, and other pastures where the turf has not been ploughed up for many years. Aug. Sept.

VAR. 2. Pileus rough and scurfy, or hairy.

Schæff. 33.—*Battar.* 7. A.—*Mich.* 75. 1.—*Clus.* 268.

This seems the more common sort in some parts of Europe.

VAR. 3. Pileus beautifully tufted with pencils of brown hair. Stem tapering downwards.

Schæff. 33. f. 5. 6,

Gives a good idea of this, which with us never expands further; consequently the curtain is very durable.

Woolhope, Herefordshire. Sept. from Mr. STACKHOUSE.—
Rookery, Edgbaston, a single plant. Oct.

AGA'RICUS *la'tus*. (BOLT.) — Gills pale flesh- *broad*
colour, 8 in a set, but irregular. Pileus brown mouse,
convex, rather bossed. Stem white, cylindrical.—

Bull. 382, Gills too highly coloured.—Bolt. 2, but the colouring in my copy neither agreeing with our specimens, nor yet with his own description, which is sufficiently exact.

GILLS loose, white when young, changing to a pale flesh colour, numerous, mostly 8 in a set, but the smaller series often absent, and often standing nearer to the edge of the pileus, than the extent of the large ones.

PILEUS brown mouse colour, convex, fleshy, a little bossed, fatty, smooth when young, when fully expanded much wrinkled about the boss, 2 to 5 inches over.

STEM solid, white, cylindrical, rather scurfy towards the bottom, spongy and juicy, 2 to 3 inches high, 3-8ths diameter.
Edgbaston, on turf. Solitary. July—Sept.

**** GILLS buff.

* AGA'RICUS *hinnu'leus*. Gills buff, very broad, *fawn coloured*
4 in a set. Pileus fawn-coloured, convex, mealy. Stem
chestnut.—

GILLS loose, buff, very broad, 4 in a set.

PILEUS bright fawn-colour, surface covered with a fine farinaceous substance, which appears under the microscope as mealy tubercles; 1 to 2 inches over.

STEM solid, spongy, dark chestnut colour, striated when old, 1 to 3 inches high, thick as a swan's quill. *Curtain*, its fragments attached to the edge of the pileus and to the stem.

This is an elegant species; the colour of the pileus has furnished its name, although strictly speaking, it is too bright to be called a fawn colour. Major VELLE. •

Pine plantations on Claverton. Major VELLE.

***** GILLS

* * * * * GILLS yellow.

grooved AGA'RICUS *fulca'tus*. Gills yellow, 4 in a set, larger ones grooved along the edge. Pileus orange, convex, but depressed in the middle. Stem solid, yellow, rich brown below.—

Bolt. 135.—Bull. 519. 2.

GILLS loose, yellow, moderately numerous, in contact with the stem but not attached to it, 4 in a set, the larger Gills thick, and grooved along the edge.

PILEUS orange in the middle, yellow towards the edge, convex but depressed, $\frac{3}{4}$ of an inch to $3\frac{1}{2}$ inches over. *Flesh* white.

STEM solid, cylindrical, yellow, velvety, paler upwards, dark rich brown below, $1\frac{1}{2}$ to 2 inches high, 1-8th to 3-8ths diameter.

In clusters affixed to rotten wood. Edgbaston. 15th Nov. 1790.

cotton-tufted * AGA'RICUS *lu'teus*. (BOLT.) — Gills yellow, numerous, uniform. Pileus yellow, conical, tufted. Stem tapering upwards.—

Bolt. 50.

GILLS loose, thin, tender, delicate.

PILEUS a blunt cone, bearing the remains of its wrapper on its surface, in form of little, soft, cottony tufts; edge waved, scolloped, scored when old; $1\frac{1}{2}$ inch from the edge to the top.

STEM solid, yellow, tapering upwards, $2\frac{1}{2}$ inches high, $\frac{1}{4}$ diameter at the ring, which is permanent. BOLTON.

Amongst the bark in a pine stove.

Aug.

minikin * AGA'RICUS *minu'tulus*. (SCHÆFF.)—Gills yellowish, few, uniform. Pileus brown yellow, scored, nearly cylindrical. Stem white.—

Schæff. 308.

GILLS loose.

PILEUS bell-shaped, 1-10th of an inch high.

STEM solid, white, cylindrical, rather bent, very slender, $\frac{1}{2}$ inch high. SCHÆFFER.

Grows in patches on the ground, but the plants grow singly. In that and in its general aspect, it is extremely like the var. 1. *Ag. turbinatus*; and I know that plant has repeatedly been referred to Schæff. 308, but it differs in having "Gills white, in pairs; stem solid."

In pastures, in autumn. DICKSON. fasc. 1. p. 16.

AGARICUS *aurantius*. Gills loofe, yellow; 2, orange
3, or 4 in a fet. Pileus and stem pinky.—

Ag. aurantius. Var. 4. See HOLLOW and FIXED:

***** GILLS grey.

* AGARICUS *dur*us. (BOLT.)—Gills loofe, pale *hard*
grey, very numerous, 4 in a fet. Pileus pale dusky buff,
convex. Stem pale whitish buff.—

Bull. 428. 2.—Bolt. 67. 1:

GILLS loofe, very numerous, thin, broad:

PILEUS pale dusky yellow, feels like vellum, 2 to 4 inches over.

STEM solid, cylindrical, 2 to 3 inches high, 2-8ths to 3-8ths diameter:

Curtain white, evanescent. The substance of the whole plant very
hard and brittle. BOLTON.

Sometimes solitary, generally in clusters; in woods. Autumn.
BULLIARD.

* AGARICUS *mammo*'fus. (LINN.)—Gills yellow *breast*
grey, 4 in a fet. Pileus convex, pointed in the center,
grey brown. Stem grey brown, cylindrical.—

Bolt. 69.—Buxb. cent. 4. t. 21. f. 1. 2.

Gills loofe, yellow grey, convex, scolloped. Pileus grey or
brownish, convex, pointed. Stem scored, very long, cylindrical,
naked. LINN.

GILLS loofe, pale dusky grey with a tinge of flesh colour; very
broad, waved, and the long ones scolloped at the edge.

PILEUS dusky grey with a tinge of reddish brown, surface clothly,
3 inches over, central projection like a nipple.

STEM solid, grey brown, paler below, hard, firm, cylindrical, 4 or
5 inches high, $\frac{1}{2}$ inch diameter. BOLT.

Ag. stipitatus, pileo convexo acuminato griseo, lamellis convexus
griseis crenatis. LINN.

In woods.

Sept:

* AGARICUS *lur*idus. (BOLT.)—Gills blue *lurid*
grey, numerous, uniform. Pileus dirty olive brown,
slimy, bluntly conical, edge irregularly lobed. Stem
dirty olive brown, bent.—

Bolt. 25.

GILLS not touching the stem, fordid greyish blue, uniform, very
numerous, close set, broad, deliquescent.

Pileus dusky greyish hue with a cast of dirty olive, quite smooth, covered with a thick slime, edge with very unequal lobes and gashes, $2\frac{1}{2}$ inches across the base, and as much in height.

STEM solid, hard, dirty yellowish brown, bent in various directions, 4 inches high, $\frac{1}{2}$ inch diameter. **BOLTON**, who in a letter to me remarks, that it is slow of growth, and of much longer duration than any of the deliquescent species which had fallen under his observation.

On Gibbet Hill, and other places near Halifax.

§ IV. HOLLOW and DECURRENT.

* GILLS white.

snow-white

* **AGA'RICUS niv'eus.** (SCHÆFF.)—Gills white, in pairs. Pileus white, viscid, flattish. Stem white, cylindrical.—

Schæff. 232, not good. (Description at Ind. p. 57, very good.)

GILLS decurrent, glossy white, few, in pairs.

PILEUS at first convex, afterwards flattened, and often depressed in the center; viscid, brittle, not fleshy.

STEM hollow, white, 1 to $2\frac{1}{2}$ inches high, thick as a goose quill.

Major VELLEY.—I am obliged to the gentleman just mentioned for the knowledge of this plant being indigenous, for most of the preceding characters, and for the following observations:—The Pileus is so little fleshy, that when dry, it is sufficiently transparent to exhibit the form of the Gills. The decurrence of the longer Gills, which is invariable, separates it from the *Ag. coriaceus* of Lightfoot, (*Ag. orcadæ*) the Gills of which, as he observes, do not touch the stem. **Major VELLEY.**

In a small clump of firs, near the middle of Claverton Down; Bath.

** GILLS red.

mealy

AGA'RICUS farina'ceus. (HUDS.)—Gills dilute pink, edges scalloped, 4 in a set. Pileus, pinky brown, bossed. Stem very pale pinky brown, thick at the top.—

Schæff. 13.—Batsch. 100.

GILLS a little decurrent, few, very dilute pink, or as if powdered with dull white upon a pink ground; scalloped at the edge, regularly 4 in a set.

PILEUS pale pinky brown, deeper coloured and bossed in the center; $\frac{1}{2}$ to 1 inch over.

STEM

STEM hollow, very pale brown, with a pinky tinge, shining, thickest at the top, 4 inches high, size of a crow quill.

This plant is always distinguishable by the small number of Gills, which are sprinkled with a mealy powder. Stem slender, 3 or 4 inches high. Pileus 1 to 2 inches over, varying in colour, but usually more or less purple, often very irregular in shape, and 'occasioning waves in the Gills. Common. Mr. WOODWARD.—Gills sometimes splitting at the end, hardly to be called decurrent. Plant in its young state of a light blossom colour, the Gills very slightly tinged. As it advances in maturity it acquires a much deeper tint, and assumes the habit of Schæffer's plant, which is that which I speak of. I do not see the propriety of Mr. Hudson's trivial name, since many species are much more evidently possessed of a mealy substance. M. VELLE.

In the grass under pine trees at Bath, in abundance. On Comb Down. Major VELLE.

VAR. 1. Gills in pairs. Stem thickest at the bottom when young.

GILLS, about 20 long ones.

PILEUS $\frac{3}{4}$ to $\frac{1}{2}$ of an inch over, convex, turning up with age.

STEM thickest downwards in the young, thickest upwards in the old plants, $1\frac{1}{2}$ to 2 inches high. The whole plant inside and outside of a pinky red.

Plantations at Tettenhall, Staffordshire. July.

AGA'RICUS *irregula'ris*. (BOLT.)—Gills pale rose, *irregular* broad, tough, wide asunder, 4 in a set. Pileus pale brown, bossed, irregular, sloping. Stem whitish, cylindrical, flattened and larger at the top.—

Bolt. 13.

GILLS decurrent, of a delicate blush colour, tough, broad, not numerous, 4 in a set.

PILEUS pale brown, or whitish, bossed, plaited, crumpled, irregular, set sloping on the stem, about 2 inches over.

STEM hollow, nearly white, cylindrical, but larger and flattened at the setting on of the pileus, 2 inches high, $\frac{1}{4}$ inch diameter.

Specimen, description, and an excellent drawing from Mr. STACKHOUSE.

Ditches under trees, not uncommon. Beacon Hill, Bath. Woolhope, Herefordshire. Mr. STACKHOUSE.

*** GILLS yellow.

AGA'RICUS *par'vus*. Gills orange, in pairs, about *small orange* 20 pair. Pileus orange, dimpled. Stem orange.—

Bull. 519. 1. B. C!

GILLS decurrent, deep orange, paler towards the stem, broad for the size of the plant, about 20 large ones and a very small one between each.

PILEUS orange; center depressed, edge turned down, 1-3d or $\frac{1}{4}$ of an inch over.

STEM hollow, orange, $\frac{1}{2}$ or $\frac{3}{4}$ of an inch high, not thicker than a pin.

The whole plant very viscid and semi-transparent. M. Bulliard has called this plant *corticalis*, and figured it as growing on the bark of a tree; but as that is not its most common situation, his name is not very proper.

Pastures, Edgbaston, amongst short grass and moss, common.

27th Aug. 1791.

* VAR. 1. Gills pale orange, 4 in a set. Pileus orange, the central dimple bluish purple. Stem deep orange below, paler above.

Battar. 28. Y.—very like Bull. 186, but that represented with a solid stem.

GILLS decurrent, whitish orange, not numerous, broad, 4 in a set.

PILEUS 1 line to $\frac{1}{2}$ inch; in the small ones bell-shaped, with plane margins; in the larger convex, always dimpled in the center; the dimple bluish purple, which colour runs down part of the stem, and may be seen through the gills if held up to a strong light; the margin waved and plaited with great elegance, extended, thin, varying, of a pale or deep orange colour.

STEM long, slender, hollow, the lower half deep orange as the pileus, upper pale as the gills, smooth and shining, cottony at the base. The whole plant shining and somewhat transparent, shaped like a trumpet.

Pine Grove at Kirby, on moss. Mr. WOODWARD.

navel AGA'RICUS *umbilicatus*. (BULL.)—Gills deep buff, 4 in a set, large ones very broad. Pileus buff, hollow in the center. Stem reddish buff, cylindrical.—

Bull. 411. 2, (but paler than our specimens.)

GILLS a little decurrent, deep red buff, 4 in a set, large ones about 25, much broader than the other, often cloven, smallest series very imperfect.

PILEUS buff, hollow in the center, tearing with age, 1 to $1\frac{1}{2}$ inch over.

STEM hollow, cylindrical, reddish buff, 2 inches high, thick as a goose or a swan's quill.

Pastures, Edgbaston.

11th Oct. 1790.

AGA'RICUS *primula*. Gills primrose-colour, 4 *primrose* in a set. Pileus, center brown red, border yellow. Stem yellow, tapering downwards. —

GILLS decurrent, pale yellow with a greenish cast, 4 in a set, regular.

PILEUS convex, uneven, darkish brown red in the center, yellow at the edges, $\frac{3}{4}$ of an inch over.

STEM hollow, yellow, scurfy, often crooked, greatly tapering downwards, 4 inches long, thick as a goose quill in the middle part.

I never found this singular Agaric but once, and then it grew in clusters.

Plantations, Edgbaston.

15th Oct. 1790.

§ V. HOLLOW and FIXED.

* GILLS white.

AGA'RICUS *umbelliferus*. (LINN.)—Gills white, *trembling* broad at the base, few, 2 or 4 in a set. Pileus white, convex, a little bossed, elegantly plaited at the sides. Stem white, slender. —

Mich. 80. 11.—Bull. 519. 1. A.—Bolt. 39. A.—Ray syn. p. 9. n.

46. t. 1. f. 2. a. a.—Mich. 74. 7.—Schæff. 309, but the colouring a mistake.—Euxb. 4. 31. 3.

GILLS fixed, white, mostly in pairs in the small, in fours in the larger plants, long ones about 18.

PILEUS white, convex, a little bossed, sides plaited, very thin and semi-transparent, $\frac{1}{4}$ to $\frac{3}{4}$ of an inch over.

STEM hollow, whitish, smooth, $\frac{1}{2}$ to $2\frac{1}{2}$ inches high, not thicker than a horse-hair in the smaller plants, nearly as thick as a crow-quill in the larger.

Ag. stipitatus, pileo plicato membranaceo, lamellis basi latioribus. Fl. suec. 1192.

The delicate structure of this plant causes it to tremble when held in the hand, as Haller has observed. The *pileus* has sometimes a little mouse-colour in its centre, and so has the stem in the larger plants towards the bottom. It dries when old, and then turns wholly of a brownish colour. Mr. Stackhouse once found, and figured one specimen with a ring on the stem.—

It is sometimes very minute. Stem not $\frac{1}{2}$ inch high, and a pileus not larger than the head of a pin. Baron Haller, Michelius, and others, are inaccurate in describing this species as *striated*. That character, strictly speaking, ought to imply certain streaks or marks inherent

inherent in the pileus, whereas the striæ which they allude to, are nothing more than the edges of the Gills appearing plainly through the pellucid pileus. Major VELLE. — Gills of the same substance as the pileus, and therefore, like the Chanterelle, not properly an Agaric. Mr. WOODWARD.

Ag. stipitatus, pileo plicato membranaceo, lamellis basi latioribus. LINN. and HUDS. 621. — Ag. candidus. HUDS. 620.

Common in hedge bottoms and amongst moss, attached to dead leaves and half rotten sticks. Oct. Nov.

wood AGA'RICUS *nemoralis*. Gills white, numerous, 4 in a set. Pileus white, smooth, convex, buffy in the center. Stem white, thickest downwards. —

GILLS fixed, white, numerous, the upper part only attached to the stem, very thin and delicate, but not brittle, regularly 4 in a set.

PILEUS white, smooth, convex, pointed and buffy in the center, 1 to 1½ inch over.

STEM hollow, white, thickest at the bottom, which is covered with a white cottony substance, 2 to 3 inches high, thick as a raven's quill.

In woods; Edgbaston.

Oct. 31st.

VAR. 1. Pileus, center concave. Stem cylindrical.

VAR. 2. Pileus conical, uneven at the edge. Stem cylindrical.

GILLS fixed, white, numerous, 4 in a set.

PILEUS white, smooth, conical, very thin and therefore transparent, uneven at the edge, cone ½ inch high, and as much across at the base.

Curtain sometimes hanging in fragments to the edge of the pileus, STEM hollow, white, cylindrical, smooth, splitting, not straight but forming a serpentine line, 1½ inch high, thick as a crow-quill.

Plantations on low wet ground, amongst grass and moss. Edgbaston. Sept.

neat * AGA'RICUS *concin'nus*. (BOLT.) — Gills white, numerous, broad, 4 in a set. Pileus mouse brown, conical, blunt. Stem white, cylindrical, —

Bolt. 15.

GILLS fixed, thin, pliable, closely set.

PILEUS conical, dark mouse brown, dissolving into a fordid jelly; 2 inches over.

STEM hollow, tender, 2 to 3 inches high, thick as a goose quill.

BOLTON.

Moist woods.

23d Sept. 1786.

AGA'.

AGA'RICUS *va'rius*. Gills white, not numerous, *variable*

2 or 4 in a set. Pileus conical, scored. Stem cylindrical, glossy, stiff, size of a crow quill. † —

VAR. 1. Gills whitish, 4 in a set. Pileus pale brown, edge plaited, Stem whitish, crooked and cottony at the root.

Bull. 518. D.

GILLS fixed, nearly white, not numerous, regularly 4 in a set.

PILEUS pale brown, sometimes mouse-colour, conical, scored, rather plaited at the border, $\frac{1}{2}$ to 1 inch from the edge to the point of the cone. *Flesh* white, firm.

STEM hollow, cylindrical, stiff and elastic, nearly white, but sometimes only silvery white at the top, and polished grey below; thicker, crooked, and cottony at the bottom, 4 to 6 inches high, thick as a crow quill.

The remarkable firm stiffness of the stem characterises this and most of the following varieties.

Roots and stumps of a filberd hedge.

Oct. Nov.

VAR. 2. Gills white, inosculating, 2, 3, or 4 in a set. Pileus purplish brown. Stem bluish brown.

Schæff. 52. 1—6.

GILLS fixed, white, fleshy, firm, often very irregular and interlaced with ligaments connecting them together, but the general disposition 2 or 4 in a set.

PILEUS brown, with more or less of a purplish tinge, edge in the young plants cooped in and white, conical, pointed or bossed, but the apex not always central, streaked, $\frac{1}{2}$ to $\frac{3}{4}$ inch from the edge to the point of the cone.

STEM hollow, cylindrical, but more or less compressed, bluish brown, to pale mouse, firm, tough, generally crooked, $1\frac{1}{2}$ inch high, thick as a crow quill, sometimes a little woolly towards the bottom in the larger plants.

Ag. conicus. HUDS. 620.

Roots of filberd trees, with the preceding.

Nov.

VAR. 3. Gills white, 4 in a set, connected by threads to the pileus. Stem ending in a pear-shaped bulb.

GILLS fixed, white, moderately numerous, connected by white ligaments to the pileus, 4 in a set, but the smaller series very irregular in size.

† M. Bulliard has well figured several sorts of this variable species in his 518th plate, all of which have not occurred to me, but I have found several which still remain to be figured, and have no doubt but several others may yet be found. On this account, and from the difficulties which I know this variable species has occasioned, particular descriptions are added to each variety; for by this means only can we hope to get them properly arranged.

CRYPTOGAMIA. Fungi.

PILEUS brown, conical, but expanded, pointed, sides streaked, $\frac{1}{2}$ to $1\frac{1}{2}$ inch over.

STEM hollow, mouse colour, smooth, $1\frac{1}{2}$ to $3\frac{1}{2}$ inches high, thick as a crow quill, swelling suddenly at the bottom into a pear-shaped bulb, and then dividing into roots.

Ag. filipes, BULL. 320, the right hand figure would give a good idea of this plant if the stem were not so tall and slender, the Gills not loose, and the root not hairy.

Edgbaston Park.

13th Nov. 1790.

VAR. 4. Gills white, 2 or 4 in a set. Pileus brownish white, mottled with purple dots. Stem white.

Bull. 518. E. expresses a mottled variety, but it is larger and more coloured than our specimens.

GILLS fixed to the stem by a small claw, white, not numerous, 4 in a set, but the smaller series often wanting.

PILEUS brownish white, mottled with purplish dots and streaks, conical, cracking at top when full grown, $\frac{1}{2}$ inch from the edge to the point of the cone. *Flesh* white.

STEM hollow, white, glossy, splitting, often crooked, 1 to $1\frac{1}{2}$ inch high, thinner than a crow quill.

At the bottom of posts and pales.

25th Nov.

VAR. 5. Gills white, with purple blotches, 2 or 4 in a set. Pileus whitish, with purplish brown blotches. Stem brown.

GILLS fixed, of a dirty white with purple blotches; not numerous, 2 or 4 in a set.

PILEUS whitish, irregularly blotched with purplish brown, conical, scored, wrinkled at the border, not fleshy, $\frac{1}{2}$ inch from the edge to the point of the cone.

STEM hollow, brown, darkest at the bottom, shining, splitting, crooked, 2 to 3 inches high, thinner than a crow quill.

This singular and beautiful variety has not been figured. It is not common with us.

On a hedge bank in the old road, Edgbaston. 27th Nov. 1791.

VAR. 6. Gills white, in pairs, long ones splitting. Pileus conical, peaked, brown mouse. Stem pale mouse, feeble. Root thick, crooked.

Gills fixed, white, in pairs, long ones often splitting at the outer end, or the short Gill connected with the long one.

PILEUS conical, pointed, brown mouse, sides wrinkled, $\frac{1}{2}$ to 1 inch from the edge to the apex of the cone.

STEM hollow, whitish mouse, smooth, feeble and bending before the decay of the pileus; 2 to 3 inches high, not half the thickness of a crow quill. Root much thicker than the stem, bent horizontally and sometimes turning upwards.

Stumps of a filberd hedge, Edgbaston.

17th Oct. 1790.

VAR.

VAR. 7. Gills white, in pairs. Pileus dark brown. Stem grey.

Bull. 518. C.

GILLS fixed, white, alternately long and short, about 20 of each sort.

PILEUS brown to chocolate colour, conical, blunt, border bent in and wrinkled, $\frac{1}{4}$ of an inch from the edge to the point.

STEM hollow, silvery grey, often crooked; $\frac{1}{2}$ to 1 inch high, not much thicker than a large pin.

This is sometimes found not much above a fourth part as large.

Not uncommon in hedge banks.

22d Oct.

* VAR. 8. Gills white, 2 or 4 in a set. Pileus, upper parts black, lower parts white. Stem black below, white upwards.

Bolt. 137.

GILLS narrow, long ones attached to the stem by a pointed claw.

PILEUS oblong egg-shaped, changing to bell-shaped; $\frac{3}{4}$ of an inch high; white at the edge only when young, but as it grows, the white extends up to its middle.

STEM dusky approaching to black, but when full grown the top is white. Near 3 inches high; thick as a raven quill. BOLTON.

Ag. atro-albus. BOLT.

Amongst moss about the roots of trees, but rare.

* VAR. 9. Gills white, irregular, long ones sometimes cloven. Pileus dark brown at top, paler at the edge. Stem almost black, root crooked, knotted.

Jacq. fl. t. 81.

GILLS loose, pale; unequal, mostly 4 in a set, long ones sometimes cloven.

PILEUS bluntly conical, dark brown at the top, paler towards the edge, scored, smooth, opaque, $1\frac{1}{2}$ inch over.

STEM hollow, black, shining, straight, firm, $\frac{1}{4}$ to 6 inches high.

Root crooked, thick, knotty, sunk about an inch into the earth, and always attached to rotten wood. Always solitary.

Has a strong offensive garlic smell, which it retains for days after it has been gathered. Linnæus supposed it to be a variety of his Ag. campanulatus. JACQUIN.

Ag. alliaceus. Jacq. but not of Bulliard, for that has a stem hairy on the outside and solid within.

Professor Jacquin does not say in his description whether the Gills are fixed to the stem or not, and in his drawing they appear to be loose, but still it has so much the structure of the Ag. varius that I venture to place it here, until further observations shall determine that point, well knowing how little the figures are to be trusted in a point which did not appear of importance to their authors. Mr.

Relhan

Relhan tells us he found this plant in woods and shady places attached to rotten wood, and oak leaves, particularly in Madingley plantations. Sept.

flat-stemmed

AGA'RICUS *compressus*. Gills white, fleshy, few, 2 to 3 in a set. Pileus brown, irregular. Stem white, compressed.—

GILLS fixed, white, fleshy, broad, wide apart, very irregular, 2 to 8 in a set, but most frequently 4; often forked at the outer end.

PILEUS brown, center generally darkest, very thin, bluntly conical, but very irregular in shape, more or less transparent, when full grown the skin cracks and forms little scales; firm 1 to 2½ inches over.

STEM hollow, containing more or less of a loose pith, white, brownish at the bottom, compressed, rarely straight, often irregularly crooked and twisted, sometimes so compressed as to appear double, splitting, $\frac{3}{4}$ to $\frac{1}{2}$ inch diameter, 2 to 3 inches high. The whole plant very brittle and watery. In a great quantity of specimens I did not find a single one that had not a compressed stem. Is not this another variety of the sportive *Ag. aurantius*?

In patches on the rising ground opposite the Stews, Edgbaston.

28th June, 1792.

silver-edged

AGA'RICUS *argenteus*. Gills watery brownish white, 4 or 3 in a set, shining at the edges. Pileus pale watery brown, bossed. Stem white.—

GILLS fixed, watery brownish white, 4 or 8 in a set, the small ones irregular and uncertain, the long ones sometimes splitting, all of them shining silvery white at the edges.

PILEUS pale watery brown, rather conical, bossed, center darker, surface mealy, streaked at the sides when young, wrinkled and plaited when old; 1 to 2½ inches over.

STEM hollow, silvery white, cylindrical, but thicker downwards, tender, splitting, 2 to 2½ inches high, thick as a goose or a swan's quill.

Grows in clusters, under elm trees in Edgbaston Park.

10th April, 1792.

filberd

AGA'RICUS *auricomus*. (BATSCH.) Gills brownish white, few, in pairs. Pileus golden brown, convex, bossed. Stem brown, thick at the top.—

Batsch. 21.

GILLS fixed, brownish white, not numerous, in pairs, but sometimes a little Gill intervening.

PILEUS

PILEUS rich brown, gently convex, bossed, slightly scored, $\frac{1}{2}$ inch over. *Flesh* white.

STEM hollow, pale brown, thicker and flattened at the top, firm, smooth, $1\frac{1}{2}$ to 2 inches high, thick as a crow quill.

Roots of filberd trees, Edgbaston.

24th Nov. 1790.

AGARICUS plum'beus. (SCHÆFF.)—Gills white, *frosted* numerous, uniform. Pileus light brown with some bluish lilac tints, convex, border streaked. Stem white; ring permanent.—

Fl. dan. 1014.—Schæff. 85. 86, (but the hollow stem not well expressed, though particularly mentioned in the description.)—Battar. 6. B.

—Mich. 78. 2.—J. B. iii. 826, fig. to the left hand, good.—Sterb. 20, K. 21. B.—Buxb. 48. 1, very bad.

GILLS fixed, white, very numerous, shining at the edges, nearly uniform, a shorter Gill only now and then intervening.

PILEUS convex, brown in the center and bossed; border with more or less of a bluish lilac cast, streaked. In its younger state frosted with white shining particles; $1\frac{1}{2}$ to 3 inches over. *Flesh* white.

STEM hollow, a loose pith in the cavity, very white, cylindrical, bulbous at the bottom, 2 to 3 inches high, $\frac{1}{2}$ inch diameter. Ring white, permanent.

Ray Syn. 7. 31, and all the synonyms of Hudson's *verrucosus*, except Schæff. 90. 91, which are the *Muscarius*.

This is one of the Agarics which possesses all the parts properly belonging to the Genus, and the frosted appearance on the pileus is probably the fragments of the wrapper. This species is undoubtedly deleterious, vide J. B. iii. 826, where it is well described; also Haller hist. 2397, and Battar. p. 28, whose fig. and description are excellent.

Pastures, Edgbaston, several together.

Oct.

VAR. 1. Pileus very pale bluish lilac.

Schæff. 244.

Shady situations, Edgbaston Park.

Oct.

AGARICUS ova'lis. Gills brownish white, 4 in a set. Pileus cinnamon, bossed. Stem brownish white, cylindrical.—

oval-headed

(Bull. 443, gives an idea of it, but the solid stem precludes it from being the same.)

GILLS fixed, brownish white, broad, the edge shaped like a bent bow, not very numerous, 4 in a set, the second series nearly as long as the first in the young plants, but the difference is greater as the growth advances.

PILEUS

PILEUS convex, slightly bossed, edge turned down, frequently oval, red brown, paler at the border, fatty, 1 to $3\frac{1}{2}$ inches over. *Flesh* white.

STEM hollow, brownish white, cylindrical, but often somewhat flattened, thicker towards the root, smooth, silky, not quite central, 2 to $3\frac{1}{2}$ inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. *Root* bulbous.

Fir plantations at Bar, Staffordshire, and in Edgbaston plantations, Sept. Oct,

VAR. I. Stem rich cinnamon coloured like the pileus, and furnished with a ring.

Specimen and drawing from Mr. Stackhouse.

Coplar wood, Herefordshire. Mr. STACKHOUSE,

purplish **AGARICUS purpurascens.** Gills purplish greenish white, 4 in a set but irregular, connected by threads to the pileus. Pileus, edge purplish, boss reddish brown. Stem purplish white.—

GILLS fixed strongly to the stem, purplish white with a cast of green, fleshy, not numerous, connected by ligaments to the pileus, mostly 4 in a set, but very irregular, the long ones sometimes splitting into 3 or 4 divisions at the outer end. The Gills of the second order often end at a distance from the stem, whilst a bit of gill is found on the stem, seemingly intended to meet the other,

PILEUS convex, bossed, very thin and semi-transparent at the edge, turning up with age; central boss pale reddish brown, border darker brown with a purple tinge; $1\frac{1}{2}$ to 2 inches over.

STEM hollow, partly filled with a light loose pith, whitish with a purple tinge, smooth, 2 inches high, thick as a swan's quill, more or less bent, and sometimes swollen in the middle.

By the long stew, Edgbaston.

14th July, 1792.

blue-edged **AGARICUS sub-ceruleus.** Gills whitish, numerous, 4 or 8 in a set. Pileus convex, center brown, edge blue. Stem pale brown. Root large, bulbous.—

GILLS slightly connected with the stem, nearly white, slightly and irregularly serrated at the edges, the serratures most obvious in the older plants, 4 or 8 in a set.

PILEUS convex, brown in the center, bluish at the edge, elsewhere pale buff, or almost white, smooth, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, but the hollow partly filled with loose pith, pale brown, cylindrical, smooth, cottony at the base, 2 inches high, thick as a

goose quill. Root a large bulb, covered with a white cottony substance, and dead leaves adhering to it.

Plantations, Edgbaston.

31st Oct. 1790.

AGA'RICUS *purpu'reus*. (BOLT.)—Gills white, 4 *purple-stemmed* in a set. Pileus purplish, somewhat bossed. Stem cylindrical, purple.—

Bolt. 41. B.—Batsch. 20, very like our plant, but the stem thicker, and neither the drawing nor the description speak sufficiently to the structure.

GILLS fixed, white or purplish white, 4 in a set, uneven at the edge, moderately numerous, smaller series very small, sometimes 1 wanting.

PILEUS bluish white or purple, changing to yellow brown, gently convex, or nearly flat, but always more or less of a central boss, turning up at the edge with age, smooth, $\frac{1}{2}$ to 1 inch over.

STEM hollow, red purple, cylindrical, thick as a crow quill, $1\frac{1}{2}$ to 2 inches high. Curtain purplish, composed of threads like a cobweb, vanishing when the plant is yet young.

The purple colour of the stem is the same within as without; that of the pileus is very evanescent. Notwithstanding the difference of size, &c. it may possibly be only a variety of the preceding species.

Fir Plantations at Bar.

June 28, 1792.

** GILLS brown.

* AGA'RICUS *liga'tus*. Gills pale brown, 4 in a *corded* set, connected to the pileus by ligaments. Pileus pale brown, flat, bossed. Stem pale brown.—

GILLS fixed, pale brown, 4 in a set, connected together and to the pileus by cross threads.

PILEUS pale brown, flat, bossed, thin, center deeper brown, $1\frac{1}{2}$ inch over.

STEM hollow, pale brown, cylindrical, smooth, 4 inches high, thick as a crow quill.

The whole plant semi-transparent, pale brown, white and opaque when dry. The threads or ligaments do not seem so much formed for connecting the Gills together as for strengthening their union with the pileus and to keep them perpendicular to it.

Edgbaston Park.

7th Nov. 1790.

AGA'RICUS *parti'tus*. Gills pale brown, few, 2 *clouvenstemm't* or 4 in a set. Pileus conical, pale brown, sides plaited. Stem whitish brown, splitting at the top.—

GILLS

GILLS fixed, pale brown, not numerous, 2 or 4 in a set, the small series being often absent, especially in the smaller plants.

PILEUS mouse brown, paler with age, conical, pointed, sides plaited, $\frac{1}{2}$ inch from the base to the apex of the cone.

STEM hollow, pale brown, cylindrical, polished, splitting at the top, 3 to 4 inches high, thick as a thin crow quill.

This is a very delicate plant, the stem uniformly splits at the top in all the specimens I have examined. The pileus always retains its conical shape.

Edgbaston plantations, amongst moss.

Nov.

VAR. 1. Gills regularly in pairs. Stem white above, mouse below, 2 inches high.

Edgbaston plantations.

Oct.

red-brown AGA'RICUS *lacrima'lis*. (BATSCH.)—Gills deep red brown, not numerous, 4 in a set. Pileus ochrey brown, scored, dimpled. Stem red brown.—

Batsch. 8.

GILLS fixed, deep red brown, semi-transparent, not crowded, 4 in a set.

PILEUS ochrey brown, scored at the sides, dimpled in the center, edge mostly turned down, $\frac{1}{2}$ to 1 inch over.

STEM hollow, reddish brown, generally crooked, $1\frac{1}{2}$ to 2 inches high, hardly so thick as a crow quill.

Hedge banks, Edgbaston old road.

27th Nov.

VAR. 1. Pileus conical. Gills hanging below the edge of the pileus.

Batsch. 7.

Grass plats.

July.

furfury AGA'RICUS *circumsep'tus*. (BATSCH.)—Gills reddish brown, 4 in a set. Pileus whitish brown, scurfy, convex, dimpled. Stem whitish brown, turned up at the base.—

Batsch. 98.

GILLS fixed, reddish brown, 4 in a set, but the short ones very imperfect from the edge of the pileus rolling in.

PILEUS gently convex, whitish brown, scurfy, dimpled, edge at first much bent inwards, but with age tearing and turning up.

STEM hollow, cavity very fine; whitish brown, darker with age, cylindrical, 2 to $2\frac{1}{2}$ inches high, thick as a raven quill. Root, the end of the stem thickened and a little turned up.

Fig. of Batsch too small, but he mentions in his description, which is a very good one, that the plant is sometimes much larger.

Edgbaston in pasture lands.

11th Oct. 1790.

AGARICUS *te'ner*. (SCHÆFF.)—Gills nut brown, *nut-brown*
4 in a set, extending below the edge of the pileus. Pileus
deep buff, bluntly conical, dark brown at the edge. Stem
nut brown, smooth, splitting.—

Schæff. 70.—Bull. 535. 1.—and 403. B. C. (*but the colours in the
latter paler than our specimens.*)

GILLS fixed slightly to the stem, rich nut brown, their extremities
dipping below the edge of the pileus, not numerous, 4 in a set.

PILEUS deep buff, dark brown edge, bluntly conical, smooth, $\frac{1}{2}$
inch from the base to the apex of the cone.

STEM hollow, nut brown, cylindrical, silky, smooth, splitting,
twisting, $3\frac{1}{2}$ inches high, hardly so thick as a crow quill.

Edgbaston, the farther plantation, amongst grass and moss.

31st Oct. 1790.

AGARICUS *fus'co-fla'vus*. Gills dark cinnamon, *yellow-brown*
4 in a set. Pileus brown yellow, convex, bossed, edge
turned down. Stem brown yellow, splitting.—

Schæff. 4.

GILLS fixed, full cinnamon, broad but not very numerous, 4 in a
set, regular.

PILEUS convex, brown yellow, fatty, a small pointed boss in the
center, edge dipping down, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, brownish yellow, white below, fatty, cylindrical,
compressed, splitting, 2 to 4 inches high, $\frac{1}{4}$ inch diameter, or
more. Sometimes the pileus is dimpled and scurfy, and the
long Gills are much broader than the others. These differences
seem chiefly to take place when the plants attain a larger size,
viz. the stem from 3 to 5 inches high, and the pileus 3 or 4
inches over.

Schæffer's name cannot properly be retained, but our plant exactly
corresponds with his figure, which has repeatedly been considered as
the *Ag. cinnamomeus* of Linnæus. Mr. Bolton seems to be the first
who has discovered that plant in this kingdom, and has figured it
extremely well in his appendix.

Pastures, Edgbaston.

17th Oct. 1790.

AGARICUS *vulpi'nus*. Gills red chesnut, 2 or *foxy*
4 in a set. Pileus chesnut, small, flattish, dimpled. Stem
fox-colour.—

GILLS fixed, chesnut-colour, firm, 4 in a set, about 30 long ones.

PILEUS chesnut, flattish, dimpled, turning up with age, $\frac{1}{2}$ or $\frac{3}{4}$ of
an inch over.

STEM

STEM hollow, the perforation very fine, tawney or fox-colour, firm, fleshy, 2 to 4 inches high, thick as a swan's quill.

The almost uniform dead foxy-colour, the smallness, flatness; and thinness of the pileus, compared with the length, the firmness, and the thickness of the stem, give this plant a very singular appearance, but I have not found any figure resembling it.

Several together, seemingly from one common root, amongst moss; Edgbaston. 11th Oct. 1790.

VAR. 1. Gills in pairs, long ones about 50. Pileus convex, not dimpled, very small. Stem club-shaped, greatly tapering upwards.

Edgbaston plantations.

Aug.—Oct.

Moss AGA'RICUS *Hyp'ni*. (BATSCH.)—Gills cinnamon, 4 in a set, long ones about 15. Pileus reddish brown, conical. Stem cylindrical, fox-coloured, shining.—

Batsch. 96.

GILLS fixed, cinnamon colour, 4 in a set, long ones about 15.

PILEUS uniform reddish brown, conical, blunt, rather scored, 1-8th to $\frac{1}{4}$ of an inch over.

STEM hollow, but pithy, cylindrical, shining, tawney or fox-colour, $\frac{3}{4}$ to $1\frac{1}{2}$ inch high, not thicker than a pin.

Amongst moss.

Oct.

ragged AGA'RICUS *lacinia'tus*. Gills brown, very broad, ragged at the edges, 4 in a set. Pileus light brown, semi-globular. Stem white, tapering downwards.—

GILLS slightly fixed to the top of the stem, brown, ragged at the edges, very broad, filling up the hollow of the pileus, 4 in a set.

PILEUS light brown, semi-globular, smooth, 1 to 2 inches over.

Flesh white.

STEM hollow, white, tapering downwards, $1\frac{1}{2}$ to 2 inches high, thick as a goose quill.

Edgbaston Park.

15th Oct. 1790.

shield AGA'RICUS *clypea'tus*. (LINN.) — Gills greyish brown, 4 or 8 in a set. Pileus pale brown, convex, bossed, viscid. Stem white, viscid.—

Bolt. 57.—Schæff. 52. f. 7. 8. 9, the stem and the boss mere coloured than ours.—Battar. 25. E.

GILLS fixed slightly to the stem, greyish watery brown, 4 or 8 in a set.

PILEUS brown, convex, bossed, border scored, very viscid, so that flies lighting upon it cannot escape, paler in colour when this viscid matter is rubbed off, 1 to $1\frac{1}{2}$ inch over. STEM

STEM hollow, white, viscid, tender, easily broken, splitting, 3 or 4 inches high, thick as a crow quill.

Ag. stipitatus, pileo hemisphaerico fordido: umbilico prominente, lamellis albis, stipite longo cylindraco albo. *Fl. Suec.* 1216.

Pileus hemispherical, generally with a pointed boss, viscid. Gills white not hollow underneath, their sides sprinkled with a dark coloured powder. Stem cylindrical, long, slender, white. LINN.

There is some doubt whether we are right in considering this species as the same with the *Clypeatus* of Linnæus. He says the Gills are white, but then the circumstance of their being dusted with a dark coloured powder may give them the colour we have described. He refers to Haller *enum.* 41. 35, where Haller describes them as very white; in every other respect his description applies exactly to our plant, and he refers at 2388 of his *Hist. Helv.* to the same figures which we have found to correspond with ours.—This in many respects resembles the *Ag. varius*, but the elastic firm and wiry stem of that, is very different from the tender texture of this. Mr. STACKHOUSE.

Plantations in Edgbaston Park.

5th Sept.

AGARICUS *fimi-pu'tris*. (BULL.)—Gills dark brown to black, 4 or 8 in a set. Pileus pale brown, conical, blunt, apex polished. Stem white.— *equilateral*

Bull. 66, (very exact, but the stem more coloured than ours.)

GILLS fixed, dark brown changing to black and liquefying, numerous, mostly 4, but in the full expansion of the larger plants, 8 in a set.

PILEUS pale dead brown, conical, blunt, apex more or less smooth and polished, sides a little streaked, thin, semi-transparent, 1 to 2 inches from the edge to the top of the cone and as much in diameter at the base, forming an equilateral-triangle.

STEM hollow, silvery white, splitting, cylindrical, 2 to 5 inches high, thick as a raven's quill. Top of the pileus sometimes slightly tinged of a chestnut colour.

In gardens.

Oct.

VAR. 1. Gills 4 in a set. Pileus grey to black.

Bolt. 66. 1.

In all other respects similar to the above, but not more than half the size.

Amongst rotten oak leaves on grass land.

Oct.

VAR. 2. Gills chocolate brown to black, mottled, in pairs. Pileus mouse colour, conical, pointed. Stem mouse, cylindrical, firm.

GILLS fixed, dark brown, mottled, turning black, in pairs.

PILEUS conical, pointed, mouse coloured, sleek and fatty, $\frac{1}{2}$ to 1 inch from the base to the apex of the cone.

STEM hollow, cylindrical, firm, mouse colour, darker below, 3 to 6 inches high, thick as a crow quill.

Curtain extremely delicate and fugacious, for a short time fringing the edge of the pileus.

This though one of our most common, and when in perfection a beautiful species, does not appear to be figured by any one. In a fine summer morning it is covered with a bloom like that on a plumb, frequently with a glittering spangled appearance, which, aided by the regularity of its form and the fine fringe of the curtain, make it an object which the eye contemplates with pleasure. When gathered the top of the stem is apt to bend at a right angle, so that the apex of the cone points horizontally. The bloom soon vanishes, and the whole turns black in decay. In its general habit and the firmness of its stem, it approaches the *Ag. varius*.

Grows in grassy places and new mown fields.

July.

honey **AGA'RICUS mel'leus.** (SCHÆFF.)—Gills pale watery brown, 4 in a set. Pileus pale buff, center deeper, rather conical. Stem whitish, crooked. Curtain fugacious.—
Schæff. 45.

GILLS fixed by small claws to the stem, pale watery brown, 4 in a set.

PILEUS buff in the center, paler towards the edge, rather conical, edge turned in, smooth, clammy, 2 inches over. *Flesh* yellow white.

STEM hollow, whitish, scurfy and brown below, cylindrical, crooked, 2 to 3 inches high, thick as a small goose quill.

Curtain white, tender, not leaving a ring.

Grows in clusters, with a large root extending horizontally, and fixed to fragments of rotten wood.

Edgwaite plantations.

21st August.

* **VAR. 1.** Pileus chestnut colour.

Bolt. 10.

I venture to place this here, but wish the author had been more explicit either in his figure or in his description.

fleshless **AGA'RICUS ma'cer.** Gills pinky pale brown, 8 in a set. Pileus pale brown, convex, bossed. Stem white, cylindrical, smooth.—

Bull. 518. f. F.

GILLS fixed, pinky white when young, changing when expanded to a brownish flesh colour, thin, numerous.

PILEUS

PILEUS conical when young, nearly flat when old, always bossed, slightly scored, uneven at the edge, very thin and semi-transparent, the pale dead brown when rubbed getting a pinky cast; from 1 to $3\frac{1}{2}$ inches over.

STEM hollow, white, cylindrical, smooth, splitting, from $1\frac{1}{4}$ to 4 inches high, from 1-8th to 3-8ths diameter. Neither curtain nor ring.

Growing in clusters, and like most of the clustered Agarics, varying very much in size.

Edgbaston Milking-bank.

July—Sept.

VAR. 1. Gills pinky brown, 4 or 8 in a set. Pileus very pale buff, nearly flat. Stem with a little loose pith in the hollow.

Batsch. 111, (but the pileus in our plants paler and flatter.)

GILLS fixed, fleshy brown colour, with a purplish tinge at the edges when shedding the seed, 4 or 8 in a set.

PILEUS nearly flat, with a gently raised boss, buffy white at the border, more buffy in the center; a little cracking and wrinkled at the edge, 1 to $1\frac{1}{2}$ inch over. *Flesh* very thin, white.

STEM hollow, with more or less pith, white, cylindrical, smooth, $3\frac{1}{2}$ inches high, thick as a crow or raven quill.

The stem is much taller in proportion to the size of the pileus than in the preceding.

In clusters on rotten wood.

Oct.—April.

* **VAR. 2.** Gills 4 in a set. Pileus nearly white, hemispherical, transparent. Stem white.

Bolt. 11.

GILLS fixed, white with a faint reddish brown tinge, black in decay; thin, flexible, broad, distant, 4 in a set.

PILEUS white, hemispherical, never turning up, sometimes waved at the edge, membranaceous, thin, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, white, readily splitting, 2 or 3 inches high, thick as a swan's quill. **BOLTON.**—Entirely without flesh. **Mr.**

WOODWARD.

Shady woods on the decaying roots of fallen oak trees. [Not uncommon. **Mr. WOODWARD.**]

AGA'RICUS viridarius. Gills pale brown, 4 in a *grass plat* set, few. Pileus rich buff, convex. Stem pale buff, cylindrical.—

Schaff. 226.

GILLS fixed, pale brown, 4 in a set, long ones not more than 16.

PILEUS rich buff, regularly convex, smooth, $\frac{1}{4}$ inch over:

Flesh yellowish.

STEM hollow, the cavity pretty much filled with a white pith; pale buff, cylindrical, smooth, 1 inch long, thinner than a crow quill.

Root a knob.

Has none of the powdery matter on the pileus mentioned by Schæffer, but that is probably a very transitory appearance. The hollow in the stem is uniformly filled with a white pith, the surrounding flesh having a yellow cast. This pith does not appear in Schæffer's figure, therefore I suppose it is not always found so fully to occupy the hollow.

Grass plats, but not very common.

Aug.

*** GILLS red.

cinnamon AGA'RICUS *cinnamo'meus*. (LINN.) — Gills deep tawny red, broad about the middle, 4 in a set. Pileus rich cinnamon, convex, somewhat bossed. Stem yellow.—

Bolt. 150. (not Schæff. t. 4.)

Gills tawny red. Pileus convex, but flattened, often with a central rise; colour of leather, or of a chestnut. Stem yellowish, naked, long. It is readily distinguished by its cinnamon colour. LINN. — Not Haller n. 2432, nor Ray *syn.* 5. n. 23, nor Huds. 615. n. 19. — Gills a glowing reddish yellow. Pileus yellowish snuff colour, clothly to the touch. Stem bright yellow, fleshy, thicker at bottom. So well described by Linnæus that it is surprising it has not been since observed. These observations accompanied by a beautiful drawing of the plant by Mr. STACKHOUSE.

GILLS fixed by claws, which break as the pileus attains its fullest expansion, deep tawny red, broadest in the middle, uneven at the edge, not crowded.

PILEUS rich cinnamon, convex, the edge turned down, but flat and the edge curled in, even in its state of greatest expansion, the central boss small, pointed; diameter $1\frac{1}{2}$ to $3\frac{1}{2}$ inches.

STEM hollow, fine full yellow, cylindrical, generally crooked, sometimes in old plants flattened, 2 inches high, silky, shining, thick as a goose quill.

Plantations belonging to Mr. Pearson at Tettenhall, Staffordshire. July, 1792.—Pendarvis, Cornwall. Mr. STACKHOUSE.

rosy AGA'RICUS *roseus*. (BULL.) — Gills rose red, 2 to 4 in a set, connected by cross threads. Pileus rose red, bossed. Stem pale rose.—

Bull. 162.

GILLS fixed slightly to the stem, delicate rose or peach blossom colour, not numerous, 4 in a set, but the shorter series often wanting, large

large Gills in the larger plants as if bitten at the edges; all of them connected by cross threads or ligaments.

PILEUS blossom or pale rose colour, convex, bossed, scored at the sides, edge ragged, turning up with age and changing to yellow brown, from $\frac{1}{2}$ to $1\frac{1}{2}$ inch over.

STEM hollow, pale rose colour, firm, splitting, cylindrical, smooth, 2 to 4 inches high, from 1-8th to 3-8ths of an inch diameter.

Ag. incarnatus. RELHAN. suppl. ii. n. 1092.

Plantations, Edgbaston.

Nov. 1790.

VAR. 1. Gills fleshy. Pileus brown buff inclining to rose, boss darker, smooth, sides ribbed. Stem pale rose or yellowish, white at the top.

Schæff. 303,

Bottom of stumps,

Nov.

AGA'RICUS *ærugino'fus*. (CURTIS.) — Gills lilac, *verdigris* 4 or 8 in a set. Pileus blue, changing to brown yellow, convex, bossed. Stem bluish.—

Curt. 309, excellent, (but not Hudson's *viridis* which has white Gills, nor yet Micheli 152, albi et virides, 2, which has a white stem also.)

—Schæff. 1.—Bolt. 143, a very large specimen.

GILLS fixed, numerous, rich lilac colour, 4 in a set in the small, 8 in the large plants.

PILEUS convex, bossed, blue, slimy, 1 to 3 inches over; border turning up when old.

STEM hollow, bluish, white at the top, nearly cylindrical, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long; lower part covered with a thin bluish green skin.

Curtain white, delicate, fringing with its fragments the border of the pileus, and forming a ring on the stem, but not a very permanent one.† Root conical, thicker than the stem, growing to rotten wood.

The blue colour of the pileus seems caused by the slimy matter upon it, and this being laid on a yellow ground, produces a greenish cast.

Ray Syn. p. 6. n. 30.

Rookery, Edgbaston.—Not uncommon in woods. Mr. STACKHOUSE.—Earlham wood, Suffolk. Mr. WOODWARD. Sept. Oct.

VAR. 1. Gills 4 in a set. Pileus pale blue, pointed. Stem entirely white.

† In the Autumn of 1723, in several hundred specimens, I never found one that had a Ring on the stem, but the following year, almost every one which occurred had this distinguishing mark. Major VELLE.

A small specimen, perhaps only different from having grown shaded by a large plant of the *Ag. Listeri*. Var. 1. 31st Oct.

VAR. 2. Gills regularly 4 in set, without cross threads. Pileus conical, Stem white.

GILLS fixed, few, regularly 4 in a set, peach blossom colour.

PILEUS conical, pointed, blossom colour, uneven at the edge.

STEM hollow, beautifully white, $2\frac{1}{2}$ inches high, $\frac{1}{4}$ inch diameter.

Edgbaston, by the stewes, amongst grass; rare. 27th Oct. 1790.

These plants are semi-transparent, tender and brittle. I think Mr. Bulliard mistakes in saying the Gills are *loose*, they only become so when the pileus turns up as the plant approaches its decay, and then they are torn from the stem. His reference to Schæffer, t. 75, is certainly erroneous, for that is *Ag. integer*.

satlin * AGA'RICUS *fis'sus*. (BOLT.)—Gills pale brick red, broad, numerous, 4 in a set. Pileus conical, dusky olive, brown at the top. Stem grey, splitting.—

Bolt. 35.

GILLS fixed, thin, flexible, of a colour between carnation and orange.

PILEUS striated at the edge, bluntly conical, 1 to 2 inches over.

STEM hollow, pale grey, but closely examined appears to have fine longitudinal stripes of a mouse colour and silky white alternately; frequently splits throughout its whole length, the edges of the divided parts rolling in so as to give the appearance of 2 stems supporting one pileus; $\frac{4}{5}$ or 5 inches high, thick as a goose quill, BOLTON.

Woods about Halifax.

**** GILLS purple.

livid purple * AGA'RICUS *livido-purpureus*. Gills purple, few, brittle, 4 in a set. Pileus purple, convex. Stem purple, cylindrical, brittle.—

Bolt. 63; and 4.

GILLS fixed, irregularly waved at the edge.

PILEUS convex, waved at the edge, turning up with age and losing its colour; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches over.

STEM hollow, often crooked, colour changing to a dirty brown; 2 to $3\frac{1}{2}$ inches high, $\frac{1}{4}$ inch diameter. BOLTON.

Ag. amethystinus. BOLT. but that name was pre-occupied. Mr. Bolton's name for pl. 4, he himself discovered to have originated in a mistake.

* VAR 1. Whole plant of a dirty brownish flesh colour.

Bolt. 64.

Mr. Bolton thinks this the same as his pl. 63, and says he finds no distinction between them except in *colour*. If so, the dissections have been made carelessly, for the Gills in this are drawn remarkably *distant from the stem*, whilst in pl. 4, and pl. 63, they are drawn as *fixed to the stem*. Perhaps however he is right, and the dissected figure may have been drawn from a plant in a weak or decaying state, when the Gills may have separated from the stem. I suspect that the whole plant was in a diseased state.

Moist woods, on steep rocks.

Aug.—Nov.

***** GILLS yellow.

AGARICUS auran'tius. (LIGHTFOOT.)—Gills yellow, fleshy, 8 in a set. Pileus conical, orange, edge uneven. Stem yellow, splitting.—

Curt. 308.—Schæff. 2.—Bull. 50, and 524. 3.—Bolt. 67. 2.—Tourn. 327. A. B. C.—Fl. dan. 833.—Batsch. 28.

Ag. stipitatus, pileo convexo, lamellis basi mucrone dentatis. LINN.—Gills pale yellow, angular at the base. Pileus deeper yellow, smooth, edge bent inwards. Fl. fusc. 1206. See Ag. plittacinus; note at the bottom of the page.

GILLS fixed slightly to the stem, paler or deeper yellow, thick, fleshy, not numerous, irregular, 4 or 8 in a set, long ones about 30 or 40.

PILEUS conical, fatty, glutinous, bright red or orange, or pale yellow; brownish, and even black with age; the colour remaining longest at the edge; shape irregular, sometimes bossed, edge always uneven, soon cracking and turning up, $\frac{3}{4}$ to $1\frac{1}{2}$ inch from the base to the apex of the cone. Flesh yellow, tender, brittle.

STEM hollow, pithy, pale yellow to deep saffron, streaked, often flattened or twisted, splitting, 1 to 3 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter.

Ag. dentatus. LINN. HUDS.—But I still retain the name given it by Mr. Lightfoot, because we have long been accustomed to associate it with the plant, and it is also more obviously characteristic than that of Linnæus.

Edgbaston Park, plentiful on a grassy bank sloping to the East.—Bungay Common, frequent. Mr. WOODWARD.—Covers upland pastures and downs, near Bath. In woods and long grass the stem grows taller. Mr. STACKHOUSE.

June—Oct.

VAR. 1. Pileus deep crimson. Stem carmine colour. Gills 4 in a set.

Schæff. 2. f. 6, nearly represents it.

Smaller

Smaller than the preceding. Amongst short grass and moss—
Very small, glossy, highly coloured: growing on commons amongst
short grass. Woolhope, Herefordshire, Clowance, Cornwall. Mr.
STACKHOUSE.

VAR. 2. Gills few, pale green, whitish at the edges, 4 in a set, but
irregular. Pileus green, changing to yellow brown, convex,
bossed, irregular. Stem green above, yellow below.

GILLS fixed, dilute green, pale yellowish brown, or whitish towards
the edges, 4 in a set, but the smaller series very irregular, some-
times absent, sometimes 2 in a place; large ones about 30.

PILEUS convex, bossed, irregular, border scored, turning up with
age, green when young, changing to a varying mixture of
brownish yellow and green, 1 to $1\frac{1}{4}$ inch over.

STEM hollow, cylindrical, splitting, greenish upwards, yellowish
below, $1\frac{1}{2}$ inch high, thick as a raven quill.

The whole plant semi-transparent, and so slippery with slime that
it is with difficulty retained between the fingers.

Edgbaston Park, by the stews; not frequent. 21st Oct. 1790.

VAR. 3. Gills loose, pinky, fleshy, 4 in a set. Pileus pale pink.
Stem pinky.

GILLS loose, pinky, fleshy, brittle, not numerous, in contact with,
but not fixed to the stem, 4 in a set.

PILEUS pale pink, conical, pointed, edge irregular and uneven,
almost clasping the stem when young, turning up with age and
cracking entirely through to the very center; height of the cone
1 inch. *Flesh* thin, pinky.

STEM hollow, white with a pinky tinge, cylindrical, but flattened,
often cracking through its whole length on one or both sides, and
the edges at the cracks turning in so as to give the appearance of
two stems united together; 1 to 2 inches high, $\frac{1}{4}$ inch diameter.

Pastures, Edgbaston, by the long stew in the Park, on land sloping
to the North East. 14th Oct.

VAR. 4. Gills loose, yellow, 2, 3, or 4 in a set. Pileus and stem
pinky.

The smallest Gills are very minute, and frequently wanting.

On the same sloping ground as the preceding. 22d July.

The *Ag. aurantius* is the strongest exception I have met with to
the present mode of arranging the Genus. The two last varieties
undoubtedly belong to the *aurantius*, any of the plates of which will
give a good idea of them, if the colours, and the circumstances of the
Gills were changed. Perhaps the Gills in an earlier stage of growth
may be found attached to the stem; and as to colour, this species is
unusually sportive. To prevent embarrassment I shall introduce
them as exceptions to the general distribution; and what system
exists without its exceptions?

* *AGA'RICUS cera'ceus*. (WULFEN.)—Gills pale *bees-wax* yellow, in pairs. Pileus deep yellow, hemispherical, smooth. Stem deep yellow, cylindrical.—

Wulfen, in Jacq. misc. 15. 2.

Ag. stipitatus; pileo hemispherico stipiteque substuloso flavis; lamellis aquose luteolis. WULFEN.

GILLS fixed? not crowded, broad,

PILEUS convex, dry, deep yellow, $\frac{3}{4}$ of an inch over.

STEM with a fine hollow, nearly as thick as a goose quill, full one inch high, 2-10ths diameter. *Flesh* of the pileus and stem yellow. JACQ. misc. ii. p. 105, not 25, as by mistake in Dickson, Dry pastures. Sept. DICKS. fasc. 1. p. 16.

AGA'RICUS psittaci'nus. (SCHÆFF.)—Gills bright *paroquet* yellow, 4 in a set. Pileus fine green and rich buff, bluntly conical. Stem green.—

Schæff. 301.—Battar. 21. E.

GILLS fixed slightly to the stem, full bright yellow, 4 in a set; long Gills about 21; edge scolloped, but without any particular pointed tooth at the base.†

PILEUS bluntly conical, rich buff, border when young beautifully green, viscid, paler with age and the edge turning up, $\frac{3}{4}$ of an inch over.

STEM hollow, beautifully green, smooth, slimy, tender, splitting, 1 inch high, thick as a crow quill. When old the green on the upper part remains, whilst the lower becomes yellow.

† Schæffer, and after him, our English authors, have supposed this to be the *Ag. dentatus* of Linnæus, but it can hardly be so, as he points out the following particulars in his plant which do not exist in ours: — “Gills with a tooth at the base, separating from the stem; their edges broad, sub-villose or mealy. Pileus convex, border bent in. Stem scored towards the top; growing in clusters.” — My opinion is well supported by the following remarks of Major Velley: — “Schæffer is of opinion that his *Ag. psittacinus* and *Ag. coccineus*, t. 301—and 302, are both described by Linnæus under the trivial name *dentatus*. If this is the fact, has not the great naturalist formed his specific character with less precision than usual, since there are other Agarics more obviously dentated than the above, particularly than the *coccineus* 302, which in Schæffer's table does not shew the indented character? I have frequently found the *Ag. coccineus* of Schæffer, but do not recollect to have observed the teeth, and if they were observable, in an Agaric so remarkable in its colour and habit, they might have been noticed in the general description of the plant, while its more obvious distinctions should have furnished its trivial name.”

The whole plant viscid and slimy. The green colour here seems, as in the *Ag. aeruginosus*, to be contained in the slimy coating, which being laid on a golden ground acquires such an unusual brilliancy. It wears or washes from the central and projecting part of the pileus and then shews the yellow ground, but it remains longest on the upper part of the stem, because there protected by the shelter the pileus affords.

Pool dam, and the Red Rock plantation in Edgbaston Park.

Aug. Sept.

watery * *AGA'RICUS aquosus*. (BOLT.)—Gills pale yellow, 4 in a set. Pileus pale yellow, conical, smooth. Stem dusky white.—

Bolt. 71. 1.

GILLS fixed by a fine point.

PILEUS glutinous, bell-shaped, pale dusky yellow, hardly $\frac{1}{2}$ inch high.

STEM hollow, dusky white, 1 inch high, thickness of a thin crow quill. Whole plant tender, watery, pellucid, wrapped in a soft downy covering when very young. BOLTON.

Not *Ag. aquosus* of Hudson, which is a variety of the *Ag. congregatus*.

On rotten wood, under the sprinklings of the stream of Elm Cragg Well at Bellbank, near Bingley.

April.

***** GILLS buff.

flesh-coloured, *AGA'RICUS subcar'neus*. (BATSCH.)—Gills buff, 4 in a set. Pileus convex, pinky buff, viscid. Stem buff, polished.—

Batsch. 100.—Schæff. 63.

GILLS fixed, buff, 4 in a set; long ones about 22.

PILEUS deep pinky buff, convex, viscid, near $\frac{1}{2}$ inch diameter.

STEM hollow, the hollow nearly filled with pith, buff, viscid, polished, cylindrical, about 1 inch high, thinner than a crow quill.

RAY syn. p. 8. n. 38.

Edgbaston Park.

7th Nov. 1790.

scurfy stemm'd *AGA'RICUS scario'sus*. Gills deep buff, 4 in a set. Pileus convex, buff. Stem whitish above, dark brown and scaly below. Ring permanent, pale brown.—

GILLS fixed, numerous, deep buff, 4 in a set.

PILEUS convex, rather bossed, pale buff, but the center and a circle round the border darker; $\frac{1}{2}$ to $1\frac{1}{2}$ inch over. *Flesh* white.

STEM

STEM hollow, cylindrical, thick as a raven's quill, $1\frac{1}{2}$ to 2 inches high, nearly white above the ring, dark brown below it; the dark part apparently rough with short, brown, slender, rising scales. *Ring* fixed near the Gills, forming a beautiful pale brown fringe round the stem. Resembles the *Ag. nigripes*. Bull. 344, but the Gills in our plant are darker, and that has no ring.
Plantations, Edgbaston. 31st Oct. 1790.

AGA'RICUS floccosus. (SCHÆFF.)—Gills buff, 2 or 4 in a set. *Pileus* convex, bright bay, tufted with dark hair. Stem brown, bay, tufted.—

Curt. 264, very large.—*Schæff.* 61, size of our plants.—*Bull.* 266, Gills much darker than ours.—*Batsch.* 30.—(not *Baltar.* t. 8. H. for that plant is entirely white.)

GILLS fixed, buff, turning brownish, numerous, 2 or 4 in a set, but irregular.

PILEUS bright bay, set with dark triangular pencils of hair, convex when young, bossed in middle age, concave when old, edge turned down, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, brown, fibrous or hairy, 2 inches high, nearly as thick as a goose quill. *Curtain* fugacious. *Ring* permanent.

This is with us a very rare species, and my opportunities of examining it have been insufficient to allow me to clear up some difficulties which present themselves on inspecting the figures and descriptions of authors. I beg therefore to be understood as speaking with great uncertainty, and wish it may challenge the attention of those botanists who have better opportunities of examining it. I have two sorts of shaggy Agarics now before me, the one just now described, gathered at Edgbaston, another sort sent from Herefordshire by Mr. Stackhouse. The first sort has a regular fine hollow in the stem, and fixed Gills, the second has a solid stem and decurrent Gills. The habit and general appearance are the same in both, but these essential differences in structure require them to be kept apart. *Schæff.* 61. is a very exact representation of the plants found here, and *Schæff.* 80. agrees well with the Herefordshire plant. *Schæffer* was aware that they were not the same plants, and has attempted, though not successfully, to point out some discriminating differences. *Curtis* 264, and *Bull.* 266, agree with the Edgbaston plant in structure, but they are both much larger, and the colour of the Gills is too dark in *M. Bulliard's* plate. The Herefordshire plant has been extremely well drawn by Mr. Stackhouse, it is also indifferently figured *Fl. dan.* 491, of a small size. For what more I know respecting it see *Ag. pilosus*,

***** GILLS green.

clustered AGARICUS *fascicula'ris*. (HUDS.)—Gills brown green, 4 in a set. Pileus yellow and orange. Stem yellow.—

Schaff. 49. 1. 2. 3.—Bolt. 29.—J. B. iii. 835.

GILLS fixed, pale brown with a greenish cast, changing to dark olive brown; very numerous.

PILEUS more or less conical, yellow, clothly, brown orange in the center, which is sometimes rather bossed, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, yellow, crooked, sometimes compressed and appearing as if double; 2 to 4 inches high, thick as a crow or a goose quill.

Curtain very pale yellow, fugacious, leaving no durable mark on the stem.

In the larger and more expanded plants some of the long gills separate from the stem; and then they cease to grow, for they appear less broad than those which remain attached to it. This circumstance however compels us to count 8 in a set.

RAY Syn. p. 9. n. 50.

Gills very closely set and in maturity changing from a yellowish green to a dusky colour, discharging a dust when shaken. Major VELLEZ.—When held against the light with the gills towards the eye and gently turned round, a beautiful golden metallic lustre seems to play upon the under surface.

In clusters; sometimes apparently distant from any rotten wood, but most constantly found under trees, or near the bottom of posts.

June—August—April.

VAR. I. Gills yellow to greenish, 8 in a set, regular. Stem with a ring.

Batsch. 29.

GILLS fixed, pale, yellowish, soon changing to greenish, regularly 8 in a set.

PILEUS at first conical, the edge turned in, then nearly flat, full buff, harsh to the touch, $1\frac{1}{2}$ to $1\frac{1}{2}$ inch over.

STEM hollow, pale yellow, silky, seldom quite straight, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high, near $\frac{1}{4}$ inch diameter, marked very near the top with a ring.

Curtain woolly, pale greenish yellow, not very fugacious, part adhering to the edge of the pileus and part to the top of the stem forming a ring.

In clusters, Edgaston, at the bottom of posts, or other half rotten wood.

Oct.

VAR.

VAR. 2. Gills watery white changing to grey green. Pileus irregularly convex, bossed.

Il. dan. 800.—*Battar.* 22. *D. G. N.*—*Bolt.* 5.—*Schæff.* 49. 6. 7.

GILLS fixed slightly to the top of the stem by a minute claw, watery white with a faint tinge of grey, which soon attains a greenish cast; numerous, 4 or 8 in a set.

PILEUS irregularly convex, bossed but flattened at the top, sides depressed in places, edge turned in, deep buff approaching to brown orange, paler at the sides, cracking, 2 to 5 inches over.

Flesh yellow white.

STEM hollow, with a loose pith, yellow white or buff above, brown at the bottom, smooth, crooked, cylindrical, splitting, 3 to 4 inches long, and near $\frac{1}{2}$ inch diameter.

Curtain woolly, greenish white, fringing the edge of the pileus but not leaving a ring on the stem.

RAY Syn. p. 10. n. 57.

Single or in clusters, not uncommon, but the root always attached to rotten wood.

Nov.—April.

AGA'RICUS *aurantius*. Gills fixed, few, pale orange green, whitish at the edges, 4 in a set, but irregular. Pileus green, changing to yellow brown, convex, bossed, irregular. Stem green above, yellow below.—

Ag. aurantius. Var. 2. see page 368.

***** GILLS grey.

AGA'RICUS *mo'rus*. Gills grey to blue black, mulberry 4 or 8 in a set. Pileus conical, pale brown, apex chestnut. Stem dark mulberry, cylindrical.—

GILLS fixed, grey to blue black, numerous, 4 or 8 in a set.

PILEUS pale brown, conical, scored, apex reddish, polished, $\frac{1}{2}$ inch from the edge to the point of the cone.

STEM hollow, cylindrical, dark blackish red or mulberry colour, stiff, juicy, 3 to 4 inches high, thick as a crow quill.

Nearly allied to Ag. *fini-putris*, of which it may perhaps be only a variety, and the differences occasioned by the wet situation in which this was found.

In wet gravel where no grass grows, by the side of the Horse Stew, in Edgbaston Park, under a large oak tree.

Oct. 1791.

AGA'RICUS *corona'tus*. Gills grey, 4 or 8 in a crowned set. Pileus brownish grey, bluntly conical. Stem whitish brown, cylindrical.—

GILLS

GILLS fixed, grey, 4 or 8 in a set, sometimes not reaching the edge of the pileus.

PILEUS bluntly conical, flattish at the top, whitish brown or grey, darker in the center, skin round the summit of the cone cracking in a circle, and the cracked edge turning up forms a kind of cap upon the pileus; 1 to $1\frac{1}{2}$ inch over.

STEM hollow, whitish brown, cylindrical, crooked towards the root, splitting, 3 to 4 inches high, thick as a raven quill. Ring white. Edgbaston Grove, not common. April.

VAR. 1. Gills grey, edged with white, 8 in a set. Pileus semi-globular, mealy, white. Stem mealy, white.

GILLS fixed, grey edged with white, black when old.

PILEUS entirely covered with a white meal, semi-globular, edge cooping in, 2 inches over.

STEM with a fine hollow, smooth, covered with a white powder, perfectly cylindrical, 6 inches high, thicker than a raven's quill; cottony at the base.

When the mealy powder is rubbed off the pileus or stem, the skin appears of a pale livid brown colour. Sometimes it is found in a glutinous state, and then it resembles the following species, but the want of horizontality in the edge of the Gills distinguishes it.

* Pastures, Edgbaston, but rare.

July.

hemispherical

AGA'RICUS *semi-globatus*. (BATSCH.)—Gills grey, mottled, 4 or 8 in a set. Pileus greenish yellow, semi-globular. Stem pale buff.—

Curt. 194.—Batsch. 110.—J. B. iii. 847, the uppermost figure good.

—Schæff. 203, probably designed for it.

GILLS fixed, when very young whitish, but always grey at the edges, soon becoming entirely grey, and mottled, changing to chocolate with age; 4 in a set in the smaller, 8 in the larger plants; long ones about 20 or 24, their edges forming an horizontal line from the stem to the edge of the pileus.

PILEUS nearly semi-globular, yellow, or buff, to brownish; very glutinous, wrinkled with age, $\frac{3}{4}$ of an inch over.

STEM hollow, the perforation very fine and sometimes partly filled with a white pith; very pale buff, smooth, clammy, 2 to 3 inches high, thick as a crow quill.

Curtain tough, fugacious, leaving a ring near the top of the stem, which does not continue long.

RAY Syn. p. 7. n. 37.

Hudson p. 619. n. 33, but not Schæff. 210. Ray's description is very expressive. Major VELLE.

The whole plant is sometimes not larger than a large pin. Mr. Curtis had named it *glutinous*, but that term had before been applied

plied to more than one species, and the name given it by Batfch, which I have therefore preferred, is very expreffive.

Pastures, grafs plats, not uncommon.

July—Oft.

* VAR. 1. STEM livid.

Pastures, in cow dung.

Sept. Oft. Mr. HUDSON.

VAR. 2. Gills brown grey, $\frac{1}{4}$ in a fet, long ones 16 or 18. Pileus pale buff, fmooth, vifcid, femi-globular, but pointed in the center. Stem white, vifcid.

Batfch. 5.—Schæff. 236, (*the figures agree better than the description.*)

PILEUS about $\frac{1}{2}$ an inch over.

STEM hollow, filky, nearly white, 3 inches high, thinner than a crow quill.

Edgbafton Plantations.

31ft Oft. 1790.

§ VI. HOLLOW and LOOSE.

* GILLS white.

AGA'RICUS *collaria'tus*. Gills white, uniform, fixed *collared* to a collar furrounding the ftem. Pileus white, skinny, dimpled. Stem white above, black below.—

Bull. 64.—Bolt. 32.—Schæff. 239.

GILLS loose, from the ftem, but fixed to a band or collar furrounding the top of the ftem, but at fome diftance from it; white, yellowifh brown with age, uniform, from 17 to 20.

PILEUS white, convex, dimpled, ribbed at the fides, thin, skinny, 1-8th to 3-8ths of an inch over.

STEM hollow, fcored, white above, dark moufe or almoft black below, 1 to 3 inches long, not thicker than a pin.

It does not appear by Mr. Bolton's figure or description whether the Gills are fixed to a collar, or to the ftem, but be that as it may, ours is certainly the plant of M. Bulliard, quoted above, though he fays the ftem is folid, and calls it the *Ag. androfanceus* of Linnæus, but that is a very different plant, and had he given a diffefted drawing he would not have found the ftem folid. The Gills are carelefsly done both by Schæffer and Bolton, and in the latter the dimple in the center of the pileus is not expreffed. The plant at firft is entirely white, but it dries, remains a long time, and gradually changes its colour to a yellow brown, the ftem becoming quite black.

Ag. androfanceus of Schæffer; Hudfon, Lightfoot, Relhan, &c. but not of Linnæus, Scopoli, or Haller. See *Ag. androfanceus*.

Growing upon dry ficks in hedge bottoms; not uncommon.

Auguft.

AGA-

tall AGARICUS *procerus*. (Scop.)—Gills white, uniform, fixed to a collar. Pileus a broad cone, bossed, white brown, scaly. Stem scaly. Ring loose.—

Curt. iv. 39.—Fl. dan. 772.—Schæff. 23. 22.—Bull. 78.—Sterb. 7. A.—Clus. 274. 18.

GILLS loose from the stem but fixed to a collar surrounding its top, white, uniform, numerous.

PILEUS a broad blunt cone, more or less bossed, whitish, but covered with brown tawny scurfy scales, from 3 to 7 inches over. *Flesh* white, spongy.

STEM hollow, a fine pith in the cavity, gently tapering upwards, whitish brown, scaly, 6 or 8 inches high, $\frac{1}{2}$ inch diameter.

Curtain white within, brown on the outside, fixed to the edge of the pileus and to a loose ring upon the stem. *Ring* cartilaginous, loose, permanent. *Root* a pear-shaped bulb.

A short intervening Gill is sometimes found in the larger specimens. This plant when preserved in pickle is very liable to run into the vinous fermentation.—Its size and large horizontal ring distinguish it. The white Gills change with age to straw-colour and dark brown. Mr. STACKHOUSE.

RAY syn. p. 3. n. 10.—p. 4. n. 18.—p. 4. n. 17.

Ag. procerus. HUDS.

Hedge banks, and dry pastures, not uncommon.

Sept.

VAR. 1. Gills white, fixed to a collar, 2 or 4 in a set, irregular.

Pileus conical, bossed, smooth, pale brown. Stem whitish brown, smooth above.

GILLS loose from the stem, but fixed to a collar surrounding its top, white, numerous, very irregular, sometimes 2 long ones together, sometimes a long and a short one alternately, most frequently 4 in a set, long Gills often split at the end next to the edge of the pileus.

PILEUS convex, bossed, rich pale tawny brown, edge turned in, smooth and soft like glove-leather, wrinkled, the outer skin cracking with age, 4 to 6 inches over.

STEM hollow, the cavity loosely filled with a fine silky pith, nearly cylindrical, crusted below, browner and flecked above, 6 or 7 inches high, 1-3d of an inch diameter. *Curtain* white. *Ring* loose on the stem, permanent. *Root* a pear-shaped bulb.

By the large clump of beeches, Edgbaston Park.

25th Oct.

VAR. 2. Gills white, fixed to a collar, in pairs, irregular. Pileus conical, bossed, tufted, pale brown. Stem smooth, white.

Bolt. 23.

GILLS loose from the stem, but fixed to a collar surrounding its top, salmon coloured when young, white when full grown, very numerous, mostly in pairs, but sometimes 3 or 4 in a set.

PILEUS globular when young, then conical, lastly flat, but bossed, whitish brown, covered with tufts of a darker shade, 3 to 5 inches over. *Flesh* white, thin.

STEM hollow, loosely filled with fine silky pith, cylindrical, white, smooth, sometimes downy, 4 to 6 inches high, 3-8ths of an inch diameter. *Curtain* white. *Ring* loose, strong, permanent. *Root* a bulb, becoming flat with age like an onion, and then the lower part of the stem becomes angular.

In the large plantation of beeches, Edgbaston Park. Sept.

VAR. 3. Gills white, fixed to a collar, 2 or 4 in a set. *Pileus* convex, rather bossed, brown upon a white ground. *Stem* white, smooth, tapering upwards. *Ring* loose.

Schæff. 18. 19.

GILLS loose from the stem but fixed to a collar surrounding its top; white, 4 in a set, sometimes in pairs; edges finely serrated with white glandular or perhaps feminal substances.

PILEUS convex, bossed, delicate tawny brown, the outer skin tearing as the plant enlarges, it shews a dead white ground freckled over with scurf or scales of the first brown colour, 2 to 3 inches over. *Flesh* white.

STEM hollow, with a very fine, loose, silky pith; white, tapering upwards, splitting, 3 inches high, 3-8ths diameter.

Curtain white, fringing the edge of the pileus when it tears. *Ring* permanent, fixed to the stem. *Root* but little larger than the stem.

RAY syn. p. 3. n. 11.

This is a very beautiful plant, approaching in much of its structure so closely to the *Ag. procerus* that it must be considered only as a variety of it, nor do I think the smooth white stem, or the more tender and fixed *Ring* sufficient to establish it as a species; yet it must be confessed that its habit and its smaller size impress one with a different idea.

Edgbaston Park, under large Spanish chestnut trees. 4th Sept.

AGARICUS *saccharatus*. Gills white, mostly sugared uniform, narrow. *Pileus* brown, flat. *Stem* white, cylindrical. —

GILLS loose, not reaching the stem, white, not numerous, uniform, but sometimes 1 and very rarely 2 short Gills intervening.

PILEUS pale brown, flat, darker in the center, border scored, semi-transparent, surface sprinkled with remnants of a white wrapper like candied sugar, most frequent about the center, 2 inches over.

STEM hollow, white, cylindrical, 3 inches long, thick as a large goose quill.

Edgbaston Park, on the bank opposite the long stew.

extinguisher

* *AGA'RICUS extinctorius*. (LINN.)—Gills white, numerous, uniform. Pileus white, bluntly conical. Stem white.—

Bolt. 24.—Bull. 437. 1. 2.—Baltar. 27. H.

Ag. stipitatus, pileo companiformi albido lacero, lamellis niveis, stipite sub-bulboso subulato nudo. LINN.

Gills very white. Pileus convex, somewhat conical but expanding, dead white, surface scaly and torn, apex smooth. Stem dead white, thickest at the base, tapering, without a ring. Fl. succ.

GILLS uniform, thin, pure white, changing to pale brown.

PILEUS shaped like an extinguisher, but blunt at the top and uneven at the edge, white, changing to pale brown; surface smooth at first, with age streaked or scaly, 1 or $1\frac{1}{2}$ inch from the edge to the apex.

STEM hollow, with a downy cotton within, smooth, cylindrical, 3 to 5 inches high, 3-10ths diameter. BOLTON.—Gills uniform, snow-white changing to blackish brown. Pileus flapping down the stem, yellowish or dirty white. Stem long, hollow, swelling at the base. Mr. STACKHOUSE.

Amongst sand in moist and shady situations, but rare about Halifax.—[I found it once at Woolhope, Herefordsh. Mr. STACKHOUSE.]

slender

* *AGA'RICUS tenuis*. (BOLT.)—Gills white, few, thin, 4 in a set. Pileus conical to bell-shaped, pellucid, watery white, top brownish mouse. Stem white, pellucid, tall, thin.—

Bull. 320.—Bolt. 37.

GILLS loose, very thin and delicate, pellucid.

PILEUS conical changing to bell-shaped, smooth, striated when it begins to decay, $\frac{1}{2}$ inch to 1 inch over.

STEM hollow, white, pellucid, very tender and brittle, 6 inches high, thick as a small packthread. BOLTON.—Gills few, thin, transparent. Pileus mouse-coloured, thin, striated. Stem very long, slender, brittle, woolly near the base. Mr. STACKHOUSE.

—M. Bulliard observes that the stem is often 4 inches high before the pileus is larger than a pin's head.

Amongst moss and grass in shady woods at the roots of large trees. Summer and Autumn.—[Woods near Woolhope, Herefordshire. Mr. STACKHOUSE.]

AGARICUS *melea'gris*. Gills white, numerous, *chequered*
4 in a set. Pileus convex, bossed, pale brown, mottled
with red and green. Stem smooth, pale brown.—

GILLS loose, white, very numerous, 4 in a set.

PILEUS convex, bossed, pale brown, mottled with dull greenish and
a few reddish spots, edge turned down; $1\frac{1}{2}$ to 2 inches over.

STEM hollow, smooth, very pale brown, 2 to 3 inches long, thicker
than a swan's quill. Ring permanent, loose on the stem. Root a
bulb.

The want of a collar at the top of the stem separates this from the
Ag. procerus, and the presence of a permanent ring distinguishes it
from the Ag. clypeolarius.

Edgbaston Park, not frequent.

11th Oct. 1790.

AGARICUS *clypeolarius*. (BULL.)—Gills white, *mottled*
tender, 4 in a set, but irregular. Pileus convex, scurfy,
mottled. Stem cylindrical.—

Bull. 405.—Bolt. 7.

GILLS loose, pure white, numerous, tender and delicate, 4 in a set,
but not very regular; in the larger specimens running close up
to the stem, though not united to it.

PILEUS convex, expanded, center rich red brown, white towards the
border but beautifully mottled with red scurfy freckles, $2\frac{1}{2}$ inches
over. *Flesh* white, very tender.

STEM hollow, red buff below, paler upwards, tender, splitting, cylin-
drical but rather tapering upwards, 3 inches high, $\frac{1}{2}$ inch
diameter.

Pileus at first sharply conical, smooth, white, mottled, boss darker.
Stem brown, splitting into threads. Gills easily separating, fleshy, few.
Curtain white, delicate, fugacious, but leaving some marks on the stem
and on the edge of the pileus. It has a disagreeable smell.

Woods near Bath. Powick, near Worcester; pastures, Woolhope,
Herefordshire. Mr. STACKHOUSE.—In a pine grove, Ditchingham,
Norfolk. Mr. WOODWARD; who sent me a very accurate description
of it before he knew that it had been found elsewhere. Edgbaston Park,
amongst grass, very rare. August.

VAR. 1. Stem quite white. Ring white, delicate.

Bull. 506. 2. L.

This is a very small variety, the pileus hardly $\frac{1}{4}$ of an inch over,
the stem 1 inch high, the size of a crow quill.

Cherry orchard, Edgbaston, a single specimen.

Sept.

* VAR. 2. Gills white, crowded, 4 or 8 in a set. Pileus convex,
dirty white, with reddish blotches and center reddish. Stem
dirty white, blotched.

Curt. 315.—Buxb. hall. row the last, marked p. 122.

GILLS loose, very numerous, narrow, white, changing to a reddish brown.

PILEUS convex, nearly flat with age, whitish but blotched with rusty red and almost wholly red in the center, smooth, 1 to 3 inches over. *Flesh* white, firm, twice as thick as the Gills are broad.

STEM hollow, clumsy, often spotted with rusty red, faintly striated, cylindrical, but tapering at the root, 3 inches high or more, 3-8ths diameter. *Flesh* whitish, firm, in thickness equal to the diameter of the hollow. Curtis Fl. Lond. v. 53.

Growing singly or in clusters, in Lord Mansfield's Pine Wood Hampstead. [Pine Grove, Kirby. Mr. WOODWARD.] Sept. 22d

buff-headed

AGA'RICUS *ochraceus*. (SCHÆFF.)—Gills white, 4 in a set. Pileus buff, convex, semi-transparent. Stem buffy white.—

Schæff. 255.

GILLS loose, white, 4 in a set, but the smaller series irregular.

PILEUS buff, convex, semi-transparent, flat with age and uneven at the edge, 1 to 2½ inches over.

STEM hollow, buffy white, semi-transparent, cylindrical but crooked where the root begins, 1 to 2 inches high, thick as a crow quill.

Substance tender, so as not easily to be gathered from amongst the grasses without breaking. In Schæffer's fig. referred to above, the Gills are too highly coloured, and do not agree with his description Edgbaston Park.

Sept. 1791

VAR. 1. Gills 8 in a set. Pileus red brown, darker at the edge. Stem white.

The Island, Edgbaston pool.

22d June, 1792

VAR. 2. Gills yellowish watery white, 8 in a set. Pileus rich red brown, pale at the edge, cracking. Stem colour of the pileus.

The stem so disposed to split that it is hardly possible to gather it entire. The Gills leave an impression at the top of the stem, as if they had been fixed to it before the expansion of the pileus.

Under an oak by the side of the great pool; Edgbaston.

21st June, 1792

brown and
white

* AGA'RICUS *fusco-albus*. Gills brownish white, broad, regularly 4 in a set. Pileus semi-globular, brown, smooth. Stem brown.—

GILLS not reaching the stem but forming a channel round it, white or brown white.

PILEUS dark brown chefnut, hemifpherical, turning up with age, fmooth, fometimes rather boffed, without flefh, $\frac{3}{4}$ to 1 inch over, quite black when old.

STEM hollow, fize of a ftraw, $\frac{1}{2}$ inch high, dark brown, thicker at the top where it joins the pileus. Description and drawing from Mr. STACKHOUSE.

In fhort grafs, on commons in Herefordfhire, not unfrequent, but I do not find it noticed. Mr. STACKHOUSE.

* **AGA'RICUS** *pilulifor'mis*. (BULL.)—Gills white, *pill* in pairs. Pileus brown, globular. Stem white.—

Bull. 112.

GILLS loofe, white, narrow.

PILEUS brown, quite globular when young, rather lefs fo when full grown, from the fize of a large pin's head, to that of a large pea.

STEM hollow, white, cylindrical, $\frac{1}{4}$ to 1 inch high, thick as a fwallow's quill. BULLIARD.

At the foot of trees, and under flabs of wood; fome fcarcely larger than a large pin. Mr. STACKHOUSE.

AGA'RICUS *turbina'tus*. (RAY.) — Gills yellowifh *thronging* white, in pairs. Pileus yellow brown, cylindrical, fcored. Stem white.—

Schæff. 66, (but larger than our fpecimens.)

GILLS loofe, † femi-transparent, yellowifh white, in pairs.

PILEUS nearly cylindrical, reaching half way down the ftem, blunt at the top, fcored at the fides, uneven at the edge; yellow brown, deeper and richer brown at the top, white at the edge; when frefh gathered, beautifully frofted over with diftinct globular pellucid particles.

STEM hollow, white, fcurfy when young, fcored at full growth, about 1 inch high, thick as a goofe quill.

In clufters, of flow growth. On the fump of a tree fawn off horizontally. Nov.

† But preffed clofe to the ftem, and even adhering to it by their edges in a young ftate fo as not to be feparated without injury to the one or the other, but ftill they are neither decurrent nor fixed, the former implying an extenfion of the bafe of the Gill down along the ftem, the latter an adhefion of the bafe or foulder to the ftem. This adhefion of the edge of the Gill to the ftem takes place only in fuch as have almoft a cylindrical pileus, and it feparates as the plant arrives at maturity.

VAR. 1. Gills quite white, much smaller than the preceding and growing on the ground.

GILLS loose, but the edges making impressions on the stem, white, semi-transparent, yellowish with age, in pairs.

PILEUS cylindrical, or rather egg-shaped, extending half way down the stem, brown yellow, scored, frosted, uneven at the edge, 2-8ths to 3-8ths of an inch high.

STEM hollow, white, woolly, $\frac{1}{2}$ to 1 inch high, thinner than a crow quill.

RAY Syn. p. 10. n. 53. Ag. fuliginosus. HUDS. 620.

Schaff. 308, very much resembles it, except in having yellowish Gills and a solid stem.—Bull. 94, not unlike it, but 4 times as large, and the Gills 4 in a set.

Gills turning black with age. Pileus oblong, never turned up, not described since the time of RAY.

Several hundred growing together, on short grass under trees, Pear tree Walk, Woolhope, Herefordshire. Mr. STACKHOUSE.—Not uncommon. Mr. WOODW.—Amongst short grass, plentiful, Edgbaston Park. 6th Aug.

* VAR. 2. Gills white, brown when old, 4 in a set. Pileus rich olive. Stem brown.

Bolt. 154.

GILLS loose, white, turning brown with age, tough, flexible, distant, 4 in a set.

PILEUS conical, rich olive, darkest at the top, edge scored and turning up when old, $1\frac{1}{2}$ inch to the apex.

STEM hollow, dusky reddish brown, tough, 2 inches high, thick as a raven quill. BOLTON.

On stumps of fallen trees.

Oct.

VAR. 3. Gills brownish white, changing to reddish brown; uniform. Pileus scored, light brown, yellowish and smooth at top.

GILLS loose, numerous, uniform, watery brownish white, changing to reddish brown and then to dark chocolate.

PILEUS light brown, deeply scored, smooth and yellow brown at the top, cylindrical, edge irregular, rather turned in, $\frac{3}{4}$ inch high, broad at the top.

STEM hollow, white, $1\frac{1}{2}$ inch high, thick as a raven's quill.

Pasture land, Edgbaston, in clusters.

July.

congregated

AGARICUS congregatus. (BULL.)—Gills white, with grey edges, 2 or 4 in a set. Pileus conical, brown buff, sides furrowed. Stem white, smooth.—

Bolt. 54, the small figures.—Bull. 94, too smooth and too yellow for our specimens.

GILLS

GILLS loose, white, edges grey, spangled, 2 or 4 in a set; black with age, and deliquescent.

PILEUS conical, brown buff, apex a darker brown, surface strongly streaked, or rather furrowed, edge very uneven, bending in towards the stem, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, white, scurfy when young, splitting, 2 to 3 inches high, $\frac{1}{4}$ inch diameter.

M. Bulliard justly observes that the edge of the pileus hangs down lower on one side than on the other.

In clusters, on the milking bank, Edgbaston, in a hollow where an elm had been fallen. 31st Oct. The crops repeated in the same season. In a similar situation in the Grove. 14th April. Poultry yard. Aug.

* VAR. 1. Gills white, black on the edges, wholly black when older, 4 in a set. Pileus and stem downy.

Bolt. 156.—Bull. 138.—Mich. 73. 3.

GILLS loose, white on the sides, but with a black powder at the edges, which soon extends over the whole surface.

PILEUS grey, downy; but this covering tearing as it expands remains in patches on the surface, which then appears elsewhere white and striated; conical, blunt, $1\frac{1}{2}$ inch high.

STEM hollow, covered like the pileus with a lead coloured down, cylindrical, $2\frac{1}{2}$ inches high, thick as a raven's quill. BOLTON.

Amongst wet moss on a peat bog near Ogden Kirk.

AGA'RICUS *luteo-albus*. (BOLT.)—Gills white, 4 in a set. Pileus yellow, conical, scored. Stem pale yellow.—

Bull. 260.—Bolt. 38. 1, (excluding his other synonyms.)

GILLS loose, broad.

PILEUS $\frac{1}{4}$ of an inch from the edge to the top of the conc.

STEM 1 inch high, thick as a bristle. BOLT.—Gills very thin, broad next to the stem. Pileus bright yellow, thin, brittle, splitting, glossy. Stem hollow, delicate. Mr. STACKHOUSE.—Mr. Bolton tells me that the stem of his plant is solid, and if so it must be separated from the figure of Bulliard and the description of Mr. Stackhouse, and may possibly prove to be a variety of the *Ag. clavus*.

Common in woods near Halifax. [Short grass at Powick near Worcester. Mr. STACKHOUSE.]

** GILLS brown.

AGA'RICUS *colus*. Gills red chestnut. Pileus *disstaff*
a tall slender cone, white. Stem white.—

GILLS

GILLS loose; uniform? deep Spanish snuff colour, numerous, tender.

PILEUS dead white, near an inch high, almost cylindrical, not more than $\frac{1}{4}$ of an inch diameter, except at the edge which flanches out a little; rounded at the apex.

STEM with a fine hollow, white, cylindrical, 3 inches high, thick as a crow quill.

This is a very beautiful and rare species; none of the figures at all resemble it. Its texture tender, soon crushing and becoming watery when gathered.

A single specimen on the grass plats at Tettenhall, Staffordshire, June; and another in a pasture field, Edgbaston. August, 1792.

dark-brown * AGA'RICUS *atro-ru'fus*. (SCHÆFF.)—Gills reddish brown, few, 4 in a set. Pileus dark brown, convex, center conical. Stem brown, cylindrical, elastic.—
Schæff. 234.—Bolt. 51. 1.

GILLS loose.

PILEUS $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter.

STEM hollow, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high, nearly as thick as a crow quill.

BOLTON.

Dry barren pastures, amongst Moss.

Spring.

cottonstemm'd AGA'RICUS *xylo'pes*. Gills brown, numerous, 4 in a set; claws white. Pileus buff, flattish. Stem long.—

GILLS loose, dead brown, numerous, tender, watery, thin, termination next the stem not in contact with it, white.

PILEUS full buff, nearly flat, central part wrinkled and somewhat bossed, thin at the edge, turning watery on the least bruise; 1 to 2 inches over. *Flesh* thin, woolly or spongy, brown white.

STEM hollow, the cavity fine, with more or less of a white pith; brownish white, rarely straight, cylindrical, but thicker and scored under the pileus, and again much thicker towards the root, size of a raven to that of a small goose quill, 4 to 5 inches high.

Ring thin, ragged, brown white. Root a large irregular shaped mass, covered with white cottony substance which extends also about $\frac{1}{2}$ an inch up the stem.

Fir plantations at Bar.

28th June, 1792.

Spanish-nut * AGA'RICUS *nu'ceus*. (BOLT.)—Gills pale brown, broad, thin, 4 in a set. Pileus red brown, edge lobed and turned inwards. Stem white.—

Bolt.

Bolt. 70.—Bull. 535. 1.—Schæff.

GILLS loofe, gently waved at the edges.

PILEUS fize and colour of a Spanifh nut, dimpled at the top, dry, pliable, fmoother, filky, fhining; the margin lobed and very much rolled in, fo as to touch the ftem or even to pafs by it, the oppofite lobes preffing againft, or croffing each other.

STEM hollow, dead white, thin, tender, fplitting, 4 inches high, thick as a crow quill. BOLTON.

Among young firs, abundantly. In dry and barren foils amongft Heath and furze bufhes. Oct.

* AGA'RICUS *corruga'tus*. Gills pale brown, *crumpled* 4 in a fet. Pileus brown, convex, crumpled. Stem white, crooked, tapering upwards.—

GILLS loofe, fhallow, wide apart.

PILEUS brown, clothy to the touch, skinny, crumpled, and twifted, 1½ inch over.

STEM hollow, white, crooked, tapering upwards, feveral united together at the bottom. Defcription and drawing from Mr. STACKHOUSE.

* AGA'RICUS *cuspidat'us*. (BOLT.)—Gills dusky *pointed* brown, 4 in a fet. Pileus cinnamon colour, acutely conical. Stem brownifh, cylindrical, fmoother.—

Bolt. 66. 2.

GILLS loofe, pale dusky brown, thin, pliable, 4 in a fet.

PILEUS reddifh brown, acutely conical, filky, fmoother, even at the edge, 1 inch to the apex.

STEM hollow, the perforation fine; brownifh, cylindrical, fmoother, hard, readily fplits, 4 or 5 inches high. BOLTON.

Where weeds or charcoal have been burnt.

* AGA'RICUS *mutab'ilis*. (SCHÆFF.)—Gills tawny, 4 in a fet. Pileus brown orange, convex, boffed. Stem red brown below, and fcurfy, white above the ring.

Schæff. 9.

GILLS loofe, yellow brown, 4 in a fet.

PILEUS brown orange, or dull yellow, but changeable; 1 to 1½ inch over.

STEM hollow, cylindrical, red brown and fealy below, the fcales pointing upwards, whitifh above the ring.

Curtain thready. Ring permanent, imperfect. SCHÆFFER. — Gills not fo clofely fet as in the Ag. fascicularis, and alfo different in colour. Pileus, its varying form feems effected by the clofe and fasciculated

fasciculated growth, which in their tender state obtrude one upon another, as in the fascicularis. Major VELLEY.—Schæffer's tab. 9, and also his description good. *Pileus* very much varying in shape and often deformed. Mr. WOODWARD.—I had referred Mr. Hudson's *mutabilis* to the *Ag. velutipes* not having seen any thing like Schæffer's pl. 9, and supposing, as there was no good figure of the *velutipes* extant when Mr. Hudson published his work, that he referred to this of Schæffer as the best representation he could find; however on his authority and that of Mr. Relhan, supported by Mr. Woodward and Major Velley, I determined to introduce this plant in its proper place; but I must observe that Schæffer's t. 9, contains 2 distinct plants, one with a hollow and one with a solid stem; one with a permanent ring and one without.

On decaying wood, common. Mr. WOODWARD.

bordered * *AGARICUS marginatus*. (BATSCH.) — Gills ochrey, few, 4 in a set. *Pileus* ochrey, convex, membranaceous at the edge. Stem reddish brown, scored.—

Batsch. 207.

GILLS loose, rusty iron colour, 4 in a set, large ones about 30.

PILEUS rust colour, leathery, smooth, nearly semi-globular when young, but the edge cooped in and the top flattened, the border thin, and extending below the Gills; $1\frac{1}{2}$ to 2 inches over.

STEM hollow, 2 or $2\frac{1}{2}$ inches high, thick as a duck's quill, pale reddish brown, scored, rather scurfy. Ring cottony, reddish brown.

BATSCH.

Found by Mr. Relhan in Madingley Wood, and White Wood near Gamlingay.

*** GILLS red.

orange *AGARICUS aurantius*. Gills loose, pinky, fleshy, 4 in a set. *Pileus* and stem pinky.—

VAR. 3. *Ag. aurantius*, see page 368.

cylindrical *AGARICUS cylindricus*. Gills pinky, uniform. *Pileus* white, cylindrical, scaly. Stem cylindrical, white.

Fl. dan. 834.—*Curt. ii. 16.*—*Schmid. ic. t. 10.*—*Schæff. 46. 47. 8.*—*Bolt. 44.*

GILLS loose, distant from the top of the stem, numerous, white when very young, when in perfection pinky; changing to black and dissolving, uniform.

PILEUS cylindrical, white, covered with scurfy scales, splitting at the edge, $\frac{1}{4}$ inches high, $1\frac{1}{2}$ or 2 inches diameter. *Flesh* nonc.

STEM

STEM hollow, pithy, white, cylindrical, tender, 4 to 8 inches high, $\frac{1}{2}$ inch diameter.

Curtain small, white, connecting the pileus to the stem in its younger state, and leaving a Ring on the stem, loose, permanent.

This beautiful but fugacious plant has been extremely well figured by the authors cited above, but our best English botanists have fallen into an error in supposing it to be the *Ag. fimetarius* of Linnæus, as will be evident to those who will take the trouble to compare the figures or the descriptions. That has white Gills, changing to black, this fine pink or rose red; that is egg-shaped, this cylindrical, that grows on dunghills, this in open pasture land.

A young plant put into water and covered with a glass bell, grew three inches and a quarter in twelve hours. In decay it deliquesces in form of a dark-coloured fluid hanging in drops on the Gills. The outer white coat of the pileus is sometimes so thin as to allow the inner pinky colour to appear through it, especially towards the bottom of the pileus.

Amongst rushes, 17th Sept.—In an open pasture field, 2d May.

VAR. 1. Gills fine red. Pileus white and downy, soon changing to red. Ring permanent.

Bolt. 142.

GILLS loose, uniform, carnation coloured.

PILEUS at first white, downy; this white down disappears and the surface becomes striated and of a livid carnation colour; cylindrical when young, bluntly conical and turning up with age, $1\frac{1}{2}$ inch from the edge to the apex.

STEM hollow, white, splitting, tapering upwards, 3 inches high, $\frac{3}{8}$ ths diameter. Ring near the bottom of the stem, white, permanent. BOLTON. — It principally differs from the preceding in the abrasion of the white downy outward coat of the pileus, which may be merely accidental, and then from the extreme tenuity of the inner membrane the red of the Gills becomes visible.

On new dunghills, but rare.—In the garden field at Edgbaston.

24th July.

* VAR. 2. Gills pinky, uniform. Pileus light brown, mottled, conical.

Bolt. 26.—Battar. 26. D. E. F.

GILLS loose, distant from the top of the stem, pale pinky grey, uniform, numerous, broad, dissolving.

PILEUS conical, very uneven at the edge, light brown, set with fragments of a very pale grey brown cottony wrapper, which inclosed the pileus only in its young state; $1\frac{1}{4}$ inch from the edge to the apex.

STEM

STEM hollow, white, shining, 3 or 4 inches high, thick as a goose quill, often remaining after the decay of the pileus. BOLTON.

—Common in dry vaults, poor cottages, and under carpets on ground floors. Mr. Bolton's figure and description very just, but he has delineated one of the largest of the species. Mr. STACKHOUSE.

In clusters on wet rotten wood in cellars and damp kitchens.

tattered AGA'RICUS *appendiculatus*. (BULL.) — Gills brown red to chocolate, 4 in a set. Pileus pale buff, conical. Stem white. —

Schæff. 17. — Bull. 392. B.

GILLS loose, flesh red, liver colour or chocolate with age, numerous, 4 in a set.

PILEUS a broad blunt cone, pale buff, center darker; the whole darker with age, semi-transparent, $1\frac{1}{2}$ inch over, cracking at the edge and becoming striated as it expands.

STEM hollow, white, splitting, cylindrical, smooth, $1\frac{1}{2}$ to 2 inches long, thick as a raven's quill.

Curtain white, delicate, fugacious, hanging in fragments at the edge of the pileus, but soon vanishing after it is gathered.

Growing in large patches, very much crowded together, so that it is rare to see the pileus uniformly expanded. Dissolves into a brown watery fluid. Bulliard's figure is a good representation of our plant, but larger, and the Gills rather too much of a salmon colour. Schæff. 237, to which he refers, is surely a different species.

Cherry Orchard, Edgbaston.

27th Aug. 1791.

weeping AGA'RICUS *lacrymans*. (BULL.) — Gills dull red, broad, numerous, 2 or 4 in a set. Pileus dirty brown, conical, woolly. Stem hollow, dirty white. —

Bull. 525. 3.

GILLS loose, dirty brownish red, liver coloured with age, close set, broad, speckled with black when old, exuding spontaneously a thin milky fluid, which when concreted forms the black specks.

PILEUS dirty brown, bluntly conical, flat and bossed when old, woolly, without flesh except at the top, edge turned in, $1\frac{1}{2}$ inch from the edge to the top.

STEM hollow, dirty white, or paler brown than the pileus, 2 to 3 inches high, 2-8ths to 3-8th diameter; splitting.

Curtain white, cobweb-like, many of its threads extending from the stem to the edge of the pileus. Juice like thin milk; not acrid. Specimen, description, and drawing from Mr. STACKHOUSE.

Common in the woods in Herefordshire, and sometimes in the open pastures.

AGARICUS *reticulatus*. Gills pale flesh-colour, *net-work* mostly in pairs. Pileus convex, brown, with net-work on the center. Stem watery white. —

GILLS loose, in contact but not connected with the stem, pale whitish flesh colour, moderately numerous, in pairs, with sometimes one of a third series intervening.

PILEUS brown, center darker, convex, nearly flat when full grown, its central part covered with a kind of net-work rising considerably above the surface, $\frac{1}{2}$ to $\frac{3}{4}$ of an inch over.

STEM hollow, watery white, scored, 1 inch high, thinner than a crow quill.

The net-work is of a firm cartilaginous texture, rather a darker brown than the rest of the pileus, and remaining perfect after the other parts of the plant are decayed and dissolved.

Edgbaston Pool Dam, very scarce.

6th Aug. 1791.

***** **GILLS** buff.

* **AGARICUS** *dryophyllus*. (BULL.)—Gills pale *spreading* brown buff, broad, few, 4 in a set. Pileus dead whitish colour, nearly flat. Stem white, gently tapering upwards.

Bolt. 6.—Bull. 434, (with several variations in the colour of the stem and the pileus.)

GILLS loose, faint dusky flesh-colour, soft, pliable, tender.

PILEUS convex, nearly flat when fully expanded, tender, watery, thin, 4 or 5 inches diameter.

STEM hollow, thinning, gradually tapering upwards, sometimes twisting, splitting into fibres, surface irregular, 5 inches high, near $\frac{1}{2}$ an inch diameter. **BOLTON.**—*Pileus* when fully grown sinking in the center.

Ag. repandus. BOLT.

Shady woods.

Aug. Sept.

VAR. 1. Gills pale brown buff, numerous, irregular. Pileus dark brown, flat, velvety. Stem pale brown, short.

Bull. 434. D.

GILLS loose, pale brown or buff, numerous, irregular.

PILEUS dark brown, flat, center depressed, surface velvety to the touch.

STEM hollow, pale-brown, short. *Juice* milky, mild. Specimen and description from Mr. STACKHOUSE.

Coplar wood, near Hereford.

Sept. 1791.

***** **GILLS**

***** GILLS yellow.

renting * *AGA'RICUS flavus*. Gills pale yellow, 2 or 4 in a set. Pileus pale yellow, conical, dry, thin, tearing. Stem compressed, twisting.—

Bolt. 68.

GILLS loose, irregular, very broad towards the outer end, waved at the edges, tender, primrose colour.

PILEUS conical, pale yellow, dry, smooth, silky, shining, tearing as it expands in several places nearly to the center; 3 to 4 inches over.

STEM hollow, splitting, often compressed, furrowed and twisted, 3 or 4 inches high, $\frac{1}{2}$ inch diameter. BOLTON.

Mr. Bolton's name (*laceratus*) has been before applied to a different species, vide Scopoli n. 1513.

Dry banks and barren pastures about Halifax, but rare. BOLT.

starry * *AGA'RICUS eques'tris*. (LINN.)—Gills brimstone yellow, 4 in a set. Pileus pale yellow, convex. Stem yellow, cylindrical.—

Bolt. 65. (not Schæff. 79.)

Ag. stipitatus, pileo pallido: disco luteo, lamellis sulphureis. Fl. suec. 1219. Gills pale sulphur colour, which readily distinguishes it. Pileus convex, pale, center yellow and marked with a tawny star. Stem naked, smooth. LINN.

GILLS loose, numerous, thin, pliable, pale yellow with a tinge of green.

PILEUS convex, conical when young, pale yellowish buff, darker at the apex, 1 to $1\frac{1}{2}$ inch over. In decay, the edge of the pileus changes to a dusky hue, which gradually radiates towards the middle, forming the appearance of a yellow star of 10 or 12 rays in the center.

STEM hollow, readily splitting, pale dusky yellow, 4 inches high, thick as a raven quill. BOLTON.—Major Velley justly observes that it cannot be the 35th of Ray, which is the aurantius. Gills yellowish, unequal, distant. Pileus pale yellow, smooth, convex, gelatinous, transparent, shewing the insertion of the gills in a starry form round the apex, and the spot formed by the insertion of the stem forms the center of the star. Stem long, tender, hollow. MR. STACKHOUSE.

Meadows and pastures.

July, August.

* VAR. 1. Broader and shorter. Curtain evanescent.

Bolt. 149, (but none of his synonyms.)

GILLS loose, yellow, white when young, dirty brown when old, 4 in a set, thin, tender.

PILEUS yellow, convex, often somewhat raised in the center, tearing at the edge when old, near 3 inches over.

STEM hollow, yellow throughout, smooth, splitting, 2 inches high, thick as a goose quill. BOLTON.

On dunghills after rain. June, July.—Pastures near Bath. In Herefordshire and Worcestershire. Mr. STACKHOUSE.

AGA'RICUS *veluti'pes*. (CURT.)—Gills pale yellow, *velvet-stalk'd* 8 in a set. Pileus brown orange, nearly flat. Stem yellow above, velvety and dark brown below.—

Curt. iv. 40.—Bull. 344.—Vaill. 12. 8. 9.

GILLS loose, in contact with though adhering to the stem, pale yellow, 8 in a set.

PILEUS gently convex, nearly flat with age, brown orange, glutinous, irregular in shape, often curled at the edge, 1 to 3 inches over.

Flesh yellowish.

STEM hollow, dark brown and velvety below, top yellowish, thickest downwards, splitting, yellow within, 2 to 4 inches high, 2-8ths to 3-8ths of an inch in diameter.

Ray Syn. p. 9. n. 51.

This has been confounded with *Ag. fulcatus*, well figured in Bolton 135, but though very much alike at first sight, the structure is sufficiently different to prevent their being again mistaken.

Ag. mutabilis. HUDS. 615. 22, and RELH. 936, seem to be this plant, but on their authority, supported by that of Mr. Woodward, the *mutabilis* of Schæffer is introduced in its proper place.

Varies very much in size; grows in clusters, many from 1 root, generally attached to rotten wood. Oct.—April, not uncommon.

AGA'RICUS *aurantius*. Gills loose, yellow, 2, 3, *orange* or 4 in a set. Pileus and Stem pinky.—

Var. 4. *Ag. aurantius*. See page 368.

***** GILLS grey.

AGA'RICUS *ovatus*. (SCOP.)—Gills silvery grey, *puckered* uniform. Pileus grey brown, plaited. Stem white.—

Curt. 101.—Schæff. 67. 68.—Vaill. xii. 10. 11.

GILLS loose, in contact with but not fixed to the stem; silvery grey changing to black, very numerous, and so close set that it is hardly practicable to separate them, uniform, deliquescent.

PILEUS brown white or silvery grey, egg-shaped to bell-shaped, with remarkable plaits or folds extending from the edge nearly to the center, from 3 to 4 inches over.

STEM

STEM hollow, white, brown at the base, tender, cylindrical, 3 to 4 inches high, 2-8ths to 3-8ths diameter, thickest downwards.

Mr. Curtis has discovered that the sides of the Gills are connected to each other by very fine filaments, which accounts as he observes for the difficulty of separating them. I suspect Mr. Lightfoot's *Ag. aplicatus* to be a different plant, for he describes the Gills as terminating short of the stem and leaving a vacant circle round the top of it.

Ag. striatus. HUDS. 617.

At the bottom of a gate post.

15th Oct.

short-lived AGA'RICUS *momenta'neus*. (BULL.) — Gills grey, uniform. Pileus grey, streaked, center brown orange. Stem white.—

Fl. dan. 832. 2.—*Bull.* 128.—*Battar.* 27. *D.*—*Bolt.* 39. *C.*—*Mich.* 75. 6.

When mature, it is perfectly horizontal on its stem. Mr. STACKHOUSE.

GILLS loose, in contact with, but not connected with the stem, grey, very fine and slender, uniform, sometimes split.

PILEUS conical, soon becoming flat, grey, center brown orange, extremely thin, nearly transparent, edge uneven, 1 to 1½ inch over.

STEM hollow, beautifully white, cylindrical but rather tapering upwards, brittle, splitting, a little scurfy, 2 to 3 inches high, thinner than a crow quill.

The Gills and the Pileus appear as if composed of the same substance, but as it is found solitary, its duration very short, and its texture extremely tender, it is not easy to examine it fully. The streaks on the pileus are only apparent, and caused by the upper edges of the Gills being seen through the very thin membranaceous pileus.

Pastures after continued gentle rain.

Oct.—April.

VAR. 1. Gills grey, uniform. Pileus beautifully white as if powdered. Stem white.

GILLS loose, uniform, grey, soon dissolving into a black liquor.

PILEUS white as the finest meal, thin as tissue paper, very soon shrivelling, 1¼ inch from the edge to the apex.

STEM hollow, tapering upwards, pure white, 5 inches high, thick as a raven's quill.

On dunghills.

June 30th.

* VAR. 2. Gills grey, uniform. Pileus tawny brown, strongly streaked. Stem white.

Bolt. 54.—*Schæff.* 201.

GILLS loose, uniform, grey, changing to black.

PILEUS

PILEUS egg-shaped, edge turned in, scalloped, reddish brown, $2\frac{1}{2}$ inches from the edge to the apex.

STEM hollow, white, 5 or 6 inches high, $\frac{1}{4}$ inch diameter. BOLTON.

Single or in clusters; on the ground or on rotten wood.

AGA'RICUS *cine'reus* (SCHÆFF.) — Gills grey, *short-lived* uniform, not reaching the stem. Pileus grey, streaked, center brown. Stem white, tapering upwards:—

Bolt. 20.—Schæff. 100 and 216.

GILLS terminating at some distance from the stem, tender, watery.

PILEUS grey, plaited, conical, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches over.

STEM hollow, white, smooth, swelling below and tapering upwards like the flowering stem of an onion; 6 to 8 inches high, 1-8th to 3-8ths diameter. BOLTON.

Ag. fimetarius. HUDS. 617.

Rich meadows, or dunghills:

June.

VAR. 1. Gills 4 in a set. Pileus semi-transparent. Stem in appearance horny.

Bull. 83.

GILLS ending short of the stem, so as to form a channel round it, grey, broad, numerous.

PILEUS semi-transparent, smooth, but sometimes deeply furrowed, brown, flapping or hanging down at first, then turning up, tearing at the edge and then from its elastic nature the segments turning up.

STEM hollow, horny. This is well described by Bulliard, and though of such apparent firmness it dissolves into an inky fluid, the stem often surviving the destruction of the pileus. Mr. STACKHOUSE.

Meadows and road sides, Powick near Worcester. Mr. STACKHOUSE.

VAR. 2. Gills grey, in pairs, extremely narrow, not reaching the stem. Pileus grey, conical, plaited, buff in the center, patched with white pieces of the wrapper. Stem white, tapering upwards.

GILLS loose, terminating at some distance from the stem, dark grey, very narrow, 2 or 4 in a set.

PILEUS grey, with white blotches, the remains of the wrapper, conical, $1\frac{1}{2}$ inch high, center light brown, or buff.

STEM hollow, white, covered with a beautifully white soft down, very tender, splitting, tapering upward, thick at the root, 7 inches high, thick as a duck's quill.

bell * AGA'RICUS *campanula'tus*. (LINN.)—Gills pale grey, uniform. Pileus mouse grey, conical, blunt. Stem grey, smooth.—

Vaill. xii. 1. 2.—(Mich. 75. 9, referred to in Fl. Suec. is wholly white.

This reference is rejected in Sp. Pl. but our English botanists supposing the fig. 9 the only error, quote Mich. 75. 6, but this is *Ag. momentaneus*, a much smaller plant, has a pileus flat when expanded, very thin, scored on each side, and a white woolly stem.—Schæff. 31, has a bright yellow stem, and Gills 4 in a set.)—Schæff. 211, is, I believe, to be reckoned a *campanulatus*, varying chiefly in the Gills being drawn in pairs, but whoever has attended to the inaccuracy with which the Gills are drawn in these plates, will hardly think that an objection.

Ag. stipitatus, pileo companulato striato pellucido, lamellis adscendentibus, stipite nudo. Sp. Pl.

Gills ascending, grey or black. (Gills white. Fl. lapp. 507. Fl. Suec. ed. i. 1054.)—Pileus grey, viscid, membranaceous, conical bell-shaped. Stem naked, smooth, very long. LINN.—Gills uniform, white or very pale grey. Pileus mouse grey, conical, blunt, $\frac{3}{4}$ inch high. Stem hollow, grey, polished, 2 inches high, thick as a swallow's quill. VAILL. Par. p. 71.

Meadows, pastures, and woods.

Sept. Oct.

* VAR. 1. Gills whitish, grey turning black, uniform. Pileus yellow brown, bell-shaped, blunt. Stem greyish.

Schæff. 6.—Chuf. ii. 293, bottom at the left hand, repr. in Dod. 482.

1, and Lob. ic. ii. 272, and Ger. em. 1580. 2; cop. in Park. 1321.

19.—Vaill. 12. 5. 6, another variety, with Gills in pairs.—(Battar.

27. E. Mr. Woodward.)

GILLS loose, uniform, pale grey and then black with dust.

PILEUS at first hemispherical, the edge tearing with age, $\frac{1}{2}$ inch from the edge to the top.

STEM hollow, greyish, roughish, 1 to $1\frac{1}{2}$ inch high, thick as a raven's quill. SCHÆFF. HUDS.—Very common on decaying stumps.

Pileus shaped exactly like a woman's thimble, with a small dimple at the top; yellow brown, streaked with black. Gills sooty grey, that is, powdered with black. MR. WOODWARD.

Ag. aquosus. HUDS. 619.

On wet rotten wood.

Aug.—Oct.

half-egg AGA'RICUS *semi-ova'tus*. Gills brown grey to black, 2 or 4 in a set. Pileus light brown, smooth, half-egg-shaped. Stem cylindrical, white.—

Bolt. 53.—Bull. 164, varies a little from it, in having no appearance of a ring, and the pileus being scored.

GILLS loose, in contact with but not united to the stem, moderately numerous, 4 in a set, brown grey changing to black and deliquescent.

PILEUS light brown, or like ivory, polished, smooth, wrinkled when old like wash leather, bluntly conical, or rather the shape of the broader end of an egg, $1\frac{1}{2}$ inch from the edge to the apex, and as much across at the base. *Flesh* thin, white.

STEM hollow, white, smooth, cylindrical, pithy within, bulbous at the base, 5 inches high, thick as a goose quill. Hollow sometimes very fine, and without pith.

Curtain evanescent. *Ring* seldom perfect.

Cow pastures and dunghills.

June—Sept.

VAR. 1. Gills, grey, mottled, 2 or 4 in a set. Pileus pale brown, smooth, shape of half an egg. Stem brownish, cylindrical.

Bull. 58.

GILLS loose, grey, mottled, turning black, broad, mostly in pairs, numerous, deliquescent, shorter Gills narrow in proportion to the long ones, and often not extending to the edge of the pileus.

PILEUS brownish white, smooth, fatty, exactly the shape and about the size of the broader half of a hen's egg cut across its longer axis.

STEM hollow, cylindrical, brownish white, 2 to 3 inches high, thick as a crow quill.

Edgbaston Park.

7th Nov. 1790.

AGA'RICUS *plicatilis*. (CURTIS.)—Gills grey, in pairs. Pileus ash coloured, center brown yellow. Stem white.—*plaited*

Bull. 542. *f.* 1.—*Curt.* 200.—*Batsch* 2.—*Battar* 27. *B. G.*—(not *Fl. dan.* 832. 2.)

GILLS loose, not reaching to the stem, grey or purplish grey, changing to black, semi-transparent, deliquescent, not numerous, in pairs.

PILEUS grey with a tinge of yellow, center brown yellow, conical, flat when expanded, edge at first turned down, with age turning up, sides semi-transparent, plaited, center with a small boss sunk in a hollow, $\frac{3}{4}$ to 1 inch over, center underneath white, fleshy.

STEM hollow, white, smooth, cylindrical, feeble, 2 to 3 inches high, thick as a crow quill.

Curtain very evanescent, its remains sometimes fringing the edge of the pileus.

Ray Syn. p. 8. n. 42.

This has been confounded with the *Ag. momentaneus*, but the Gills being in pairs and their approach to the stem limited by a fleshy circle in the center of the pileus on the under side, are at all times sufficient to point out the difference.

Grass plats and new mown fields.

April—Oct.

furrowed **AGA'RICUS** *exaratus*. Gills grey changing to black, in pairs. Pileus plaited and striped.—

Bolt. 31.—*Bull.* 80.—*Schæff.* 32, very nearly the plant.

GILLS loose, in pairs, grey changing to black.

PILEUS conical, afterwards expanding, smooth at first, when expanded scored and plaited, alternately brown and lead-coloured; $1\frac{1}{2}$ inch over. It dissolves the second day into a brown liquor.

STEM hollow, whitish grey, 5 or 6 inches high, thick as a swallow's quill. *Curtain* evanescent, its remains only appearing on the stem whilst very young. *BOLTON*.—*Pileus*, plaits regular. *Gills* alternate. *Mr. STACKHOUSE*.

Ag. campanulatus. β *HUDS.* *RAY* syn. 8. 41.

Meadows, plentiful.

Sept. Oct.

belted * **AGA'RICUS** *cinctulus*. (*BOLT.*)—Gills dark blackish grey, 4 in a set. Pileus brown bay with darker belts, conical. Stem dirty brown.—

Bolt. 162, (not *Schæff.* 48.)

Gills loose, dusky black, broad in the middle, tender, brittle. *Pileus* a broad blunt cone, red-deer colour, with a broad dark brown belt, which colour penetrates the whole substance; 2 to 3 inches over. *Stem* hollow, dull dirty brown, cylindrical, 3 inches high, nearly as thick as a goose quill. *BOLTON*.

On dunghills after rain.

June, July.

Addition to Solid and Loose.

(To follow *Ag. palmatus*, p. 341.)

domestic **AGA'RICUS** *canaliculatus*. Gills nearly uniform, blackish brown. Pileus cylindrical, channelled, mouse coloured, reddish at top. Stem white.—

GILLS loose, dirty blackish brown, not all of a length, but without any short ones.

PILEUS mouse colour, smooth, reddish at the top, cylindrical, blunt, channelled, $\frac{3}{8}$ ths of an inch high, not quite so much in diameter.

STEM

STEM solid, white, tender and pulpy, $\frac{3}{4}$ of an inch high, thick as a swallow's quill.

Drawing and description from Mr. Stackhouse, who attended the progress of the growth in two of these plants, which sprang up in a pot containing an orange tree, in the window of a parlour in Bath.

June, 1792.

I have since met with the same plant, growing in the soil in an unfinished house in Birmingham. The parlour floor had been loosely laid with oak the preceding year, and on taking up the boards this plant made its appearance.

July.

B. STEMS lateral,

* GILLS white.

AGA'RICUS *labyrinthiformis*. Gills white, variously anastomosing. Pileus white, semi-circular, downy. Stem lateral, brown white, knotty.—

Schaff. 43 and 44, resemble the plant, but the plate has more colour, and the stem is less knotty.

GILLS decurrent, white, variously anastomosing, and though generally parallel sometimes assuming the form of circular or angular cavities like the pores of a Boletus.

PILEUS white, semi-circular, irregularly scolloped at the edge, covered with a short woolly down; 2 to 4 inches over. Flesh white.

STEM solid, 4 or 5 inches long, thickness of a little finger, tough, very knotty, dirty brownish white.

Plantations Edgbaston, on the ground amongst moss.

13th Sept. 1791.

AGA'RICUS *sesifilis*. (BULLIARD.)—Gills white to yellow brown, the long ones forked. Pileus milky white, flat, thin.—

Bull. 152.—Jacq. fl. 288.—Bolt. 72. 2.—Fet. gaz. 95. 8.

Wholly white, tender, brittle and pellucid; in figure nearly semi-circular, sometimes with three lobes. DICKSON.

GILLS fixed, mostly uniform, splitting, white, changing to brownish yellow.

PILEUS white as milk, flat, thin, half an inch over.

STEM, or more properly perhaps, Root, a blackish knobby substance.

Without a stem, growing by its side on rotten sticks, in hedges, Buckinghamshire. Mr. KNAPP.—From whom I first received specimens in the year 1787.—At first wholly white; in time the Gills turn yellowish, and in a dry season the whole plant dries and turns black before it decays. Mr. WOODWARD.—Gills set extremely fine, unequal in length, pale brown, narrow. Pileus snow white, powdery, convex when young, flat and the edge deflected with age; thin, tough. The whole springs from a kind of pedicle, and never exceeds the size of a sixpence. Mr. STACKHOUSE.

Ag. niveus. JACQUIN, and DICKSON; but that name had been given before to a well established species,

RAY syn. 22. n. 8.

On rotten sticks, &c. under hedges, frequent.

oyster AGA'RICUS *ostreatus*. (JACQ.)—Gills white, irregular, long ones often branched at the base. Pileus brown, smooth, thin, and wrinkled at the edge.—

Curt. 216.—Jacq. fl. 104.

GILLS fixed, whitish, of various lengths, the long ones often forked towards the base and anastomosing.

PILEUS brown, smooth, rather shining, thin and wrinkled at the edge, from 1 to 8 inches broad, from 2 to 10 inches long or more. Flesh white, tough.

STEM or rather root, solid, tough; penetrating deep into the crack of a beech tree, on which it grew.

Very much resembling the shape of an oyster, but hollowed underneath. It has a faint sickly smell.

Mr. Woodward suspects that this in a more advanced age may be the Ag. conchatus.

Near Ditchingham, Norfolk, on decayed ash. Mr. WOODWARD.—In clusters of 5 or 6 or more on willow, or elm. Mr. STACKHOUSE.—In a cleft in the bark of a large beech, near the root; Edgbaston Park.

Dec.—Jan,

VAR. 1. Proliferous.

Gills pure white, unequal. Pileus dark olive colour, leathery, thin; edge turned down. It rises from a sort of pedicle, from whence 1, 2, 3 or more misshapen lobes proceed. From these lobes other little lobes come forth. Description and drawing from Mr. STACKHOUSE.

Powick near Worcester,

ash * AGA'RICUS *dimidiatus*. (SCHÆFF.)—Gills whitish, branched. Pileus red brown and grey, semi-circular, convex, scaly, fleshy, turned in at the edge. Stem lateral, whitish.—

Schaff. 232.

GILLS fixed, only branched near the edge of the pileus.

PILEUS greyish with reddish brown scales, $1\frac{1}{2}$ inch by $2\frac{1}{2}$.

STEM solid, inversely conical, fixed to the side of the pileus, full $\frac{1}{4}$ inch long, and about as much in diameter.

This differs from the *Ag. ostreatus* in being solitary, the pileus scaly, the Gills not decurrent, branched towards the margin only, and not anastomosing at the base. It differs from the *Ag. betulinus* in being fleshy, convex, the margins inflexed, and having a short stem. Mr. WOODWARD.

On an old ash at Ditchingham. Mr. WOODWARD.

** GILLS brown.

AGA'RICUS *concha'tus*. (BULLIARD.)—Gills rich *shell* brown, extremely numerous and irregular. Pileus brown, shining, glutinous, the edge greatly turned in.—

Bull. 298.

GILLS decurrent, rich brown, very numerous, of every varying length from 7 inches to less than $\frac{1}{2}$ inch.

PILEUS brown, rather shining and glutinous, convex, or concave, edge rolled inwards and downwards, 7 inches from the root to the outer edge, and nearly as much in breadth, but its various contractions make its shape very irregular. *Flesh* thick, brown white.

STEM solid, short, thick, brown.

Edgbaston, on large trees.

3d Aug. 1791.

* AGA'RICUS *planus*. (BOLT.)—Gills mouse *flat* brown, thin, pliable, 4 in a set. Pileus mouse brown, flat, with narrow stripes near the edge.—

Bolt. 72. 3.

GILLS fixed, 4 in a set, spear-shaped, soft and tender.

PILEUS smooth, semi-circular, brownish mouse colour, marked near the edge with 3 or 4 narrow concentric lines of a darker colour; waved at the edge, near 1 inch broad and something more in width.

STEM solid, very short, more properly perhaps to be considered as a root. BOLTON.

Bulliard 140, seems a variety of this.

Grows upright on the ground.

Oct.

* AGA'RICUS *flabellifor'mis*. Gills yellowish brown, *fan* numerous. Pileus smooth, mealy, whitish. Stem short, variably eccentric.—
Schaff.

Schæff. 208.

GILLS decurrent, mostly uniform, light yellowish brown.

PILEUS smooth, tough, leathery, mealy, whitish, with deep rust coloured tints near the stem, set upon the stem like a leaf on its stalk, but sometimes more central, and turned up like a funnel; 1 to $1\frac{1}{2}$ inch over, the edge cut into irregular segments.

STEM solid, dark brown, $\frac{1}{4}$ to $\frac{1}{2}$ inch high, thick as a crow quill.

Drawing and description from MR. STACKHOUSE.

Stumps of oaks, Aldenham, Salop. Hazle stumps, Powick, Worcester; frequently growing in clusters.

* VAR. 1. Pileus about $\frac{3}{4}$ of a circle, 1 inch diameter, entire at the edge.

Bolt. 71. 2.—Vaill. 10. 7.—Buxb. v. 10. 1. 2.

Grows single or tiled; of a dry leathery substance, a smooth surface, and either a white or pale yellowish colour.

Ag. semipetiolatus. LIGHTFOOT. Ag. lateralis. HUDSON.

On decayed branches of trees.

August—Dec.

gelatinous

* AGA'RICUS *mol'lis*. (DICKSON.)—Gills ochre coloured, 8 in a set. Pileus whitish, convex, variously shaped, almost gelatinous.—

Schæff. 213.—Batsch. 38.

An inch or two in length, and half as much in breadth. Stem none.—The whole of this Agaric is very soft and tender, so much so as scarcely to bear handling. Pileus pale brown or dirty white, simple or variously lobed, waved or wrinkled. Gills pale yellow. MR. WOODWARD.—Stem, or more properly perhaps Root, a small dark coloured substance.

In the pine grove at Kirby, on Moss.

fig AGA'RICUS *ficoides*. Gills watery brown, 4 or 8 in a set. Pileus light yellow brown, surface cracked, Stem short, light brown, clothly.—

Batsch. 122.—Bolt. 72. f. 1.—Bull. 557. 1, very like it.

GILLS fixed to the stem, watery brown, 4 to 8 in a set, connected by numerous cross threads.

PILEUS light yellowish brown, shewing in the cracks a darker ground, like the surface of a dried fig. from $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, concave in the center, edge turned down; sometimes rolled in. Flesh whitish brown.

STEM lateral, short, hardly $\frac{1}{4}$ inch long and half that in diameter; thickest upwards, light brown, clothly, solid. Flesh dark reddish brown.

On an alder stump in considerable quantities adjoining to the west end of the large pool in Edgbaston Park. Jan.

*** GILLS buff.

AGA'RICUS *reniformis*. Gills pale buff, 4 in a kidney shaped set. Pileus bright brown, kidney-shaped, curled and waved at the edge.—

Bolt. 157.

GILLS decurrent, tough, flexible, moderately broad, pale buff, darker when old, and sometimes scolloped at the edges.

PILEUS bright brown or red deer colour, darker towards the stem, tough, fleshless, smooth like vellum, $1\frac{1}{2}$ inch by $2\frac{1}{2}$.

STEM $\frac{1}{4}$ of an inch in length, and as much in breadth. BOLTON.

Not Schæff. 43, 44; nor Mich. 65. 1.

Grows on the side of old trees.

Feb.

AGA'RICUS *fætidus*. Gills yellowish, mostly in pairs, broad, wide apart. Pileus dirty buff, convex, edge turned in.—

GILLS fixed, brown yellow, gelatinous, mostly in pairs.

PILEUS convex, dirty brown buff colour, edge much rolled in, surface greatly wrinkled when old, clammy, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches over.

STEM hard, thick, blackish, not $\frac{1}{2}$ inch long; it is perhaps rather a root than a stem.

This has not been described. Its form is rather elegant, swelling out from the root-like stem, into an oblong circular form, and raised like a cushion. The inside is gelatinous and has an unpleasant smell. Several plants, viz. from 1 to 7, grow from one root, tiled one over another. Specimen, drawing, and description from Mr. STACKHOUSE.

On the bark of Willow trees, Powick, near Worcester.

C. STEMS none.

AGA'RICUS *applicatus*. Gills grey, 2 to 4 in dark-grey a set, limber, diverging from the center of the plant. Pileus dark brown grey, rather convex.—

Ag. acaulis inversus orbicularis cinereo-nigricans, lamellis in centro contingentibus,, albido cærulescentibus. DICKSON.

Batsch. t. 24. f. 125.

Plant sitting, fixed by the top of the pileus, circular or oblong, 1 inch diameter.

On

CRYPTOGAMIA. Fungi.

On rotten wood. [Earsham, Norfolk. Mr. WOODWARD.—Willow trees, Powick, near Worcester. Mr. STACKHOUSE.]

birch AGARICUS *bet'ulinus*. (LINN.) — Gills reddish yellow, to reddish brown, numerous, thin, very much branched. Pileus pale brown buff, cottony, irregularly semi-circular. —

Ag. acaulis, coriaceus villosus, marginè obtuso, lamellis anastomosantibus. Fl. suec.

Bull. 346, the four lowermost figures.—Bull. 394.—Bolt. 72. 1.
—Buxb. v. 6.—Fl. dan. 776. 1.—Bull. 537, seems to represent specimens of this and also of the Ag. quercinus.

GILLS in the younger plants 4 in a set, light brown, sometimes branched.

PILEUS thin, when young fixed to the wood on which it grows, the Gills being uppermost; it then separates from the wood and turns up, as is more particularly explained in speaking of the Ag. quercinus. This, now upper part, is brown, or greenish, and woolly, consisting of concentric circles formed in ridges. It is apt to contain blades of grass, or bits of sticks, perforating its substance, which only could have happened in its soft state.

STEM none. Rather leathery than fleshy; belts variable, some more woolly.

Gills firm, seldom inosculating. LINN. — Pileus always villose, and marked with concentric circles. Gills irregular, variously branched, but not forming lacunæ as in the Ag. quercinus. Bulliard 394 belongs to this species, and probably Schæff. 57. It has been confounded with the Ag. quercinus, by supposing it to be that species in its young state. Mr. WOODWARD.—Lobes elliptical, tiled, from 1 to 2 inches over, chestnut brown, in shades, with concentric wavy circles, very velvety to the touch, of a woody substance. Gills shallow, whitish, thickish, rigid, not emitting seeds when lying upon paper. In its young state it is gelatinous like a Boletus. Mr. STACKHOUSE. — This species has been involved in much confusion, chiefly arising from its different appearance at different ages. Mr. Stackhouse sent me a young plant in its gelatinous state, which accorded, as he observed, with Fl. dan. 776. 1; the pileus being white and the Gills a rich deep saffron colour. Bulliard 346, the lower figures, seems the same plant when it has just attained its firm texture; the colour of the Gills darker and more of a purple cast. The other figures represent the plant in its older states, and of very different sizes, the colour of the Gills being then a reddish brown, and the pileus somewhat paler but with wavy circular

circular streaks of a darker hue. The figures in Bulliard 304 are very exact representations of the specimens now before me. It sometimes grows to the size of one's hand, enlarging by proliferous offsets from the edges, each offset having its own proper central point to which its Gills are directed; but in this case the Gills in the center of the aggregate plant become extremely convoluted and irregularly branched.

Trunks and stumps of trees, not uncommon,
VAR. 1. Pileus green.

Bolt. 153.

Probably only old specimens of the preceding, the green colour occasioned by some other yet undetermined parasitical vegetable.

On old pales.

January.

AGA'RICUS *al'neus*. (LINN.) — Gills brown buff, *alder* in pairs. Pileus gently convex, semi-circular, velvety, brown grey. —

Ag. acaulis, lamellis bifidis, pulverulentis. LINN.

Schæff. 246. — Bull. 346, the two upper figures to the right hand.

—Weig. obs. 2. 6. — Battar. 38. C. D. — Buxb. v. 7. 1.

Plant sitting, fixed by the edge of the pileus, woody, varying in the shades of its colours. Gills strong, but the surface downy. Pileus velvety to the touch, from $\frac{1}{2}$ to 2 inches over.

On decaying trunks of trees, particularly on the alder. [At Aldenham, Salop. Mr. STACKHOUSE.] Winter and Spring.

AGA'RICUS *querci'nus*. (LINN.) — Gills brown, *oak* waved, irregularly anastomosing. Pileus brown, marked with concentric circles of various hues, semi-circular, flat-tish, soft and clothly. —

Ag. acaulis, lamellis labyrinthiformibus. LINN.

Bull. 352. — Bolt. 73. — Schæff. 57. — Battar. 38. A. B. — Vaill. t. 1.

f. 1. 2, in its young state. — Buxb. v. 4. 1.

GILLS very much branched, and anastomosing, thick, forming oblong, angular, and nearly circular cavities, especially towards the edge.

PILEUS woody, nearly semi-circular, or of no regular shape, marked with circular tiled ridges as well as with different shades of colour, soft to the touch like buff leather or fine cork, 1 to 5 inches over, or more.

STEM none,

Mr,

Mr. Bolton, who has accurately attended to the œconomy of this plant, observes that in its first stage of growth the Gills are uppermost, they are then distinct, and branched, their sides united by minute lateral projections. In its second stage the pileus is in part detached from the substance on which it grew, the detached part rises up to an horizontal position, increasing in size, whilst the other part remains fixed serving as a support to it. As it grows older, the lateral projections of the Gills increase in size, and filling up the interstices between the Gills give them the appearance of oblong pores. Mr. Bulliard in plate 442 has given us several varieties of this very singular plant, and Schæffer 231 is one of monstrous or unusual growth. — Mr. Woodward observes that the union of the Gills forming lacunæ, leaves it doubtful whether it should be placed with the Agarics or the Boleti. — Mr. Stackhouse says that the pileus may be said to consist only of fructification, as it cannot be separated from the old wood without taking with it the part it adheres to; he also agrees with Mr. Bulliard that it sometimes appears so much like a Boletus as to occasion a doubt to which genus it should be referred. He further remarks, that in some of the thick, and to appearance solid specimens, the pileus is not thicker than a shilling, that the Gill is a thick leathery substance, little resembling the Gill of an Agaric, and that it is the link which connects the Agarics with the Boleti.

RAY syn. 25. n. 21.

Common on old pales, stumps, and decayed trees.

VAR. 1. Pileus green, soft, clothy.

Bolt. 73. d.

GILLS brown, waved, often connected, in no regular order.

PILEUS marked with concentric circles of various hues, from green to brown; 1 to 7 inches over. *Flesh* woody, thin, white.

It is possible that the green coat may be a species of Byffus, but this idea did not occur whilst the plant was fresh.

On old timber.

Nov. 1790.

FISTULINA. (BULLIARD.)

ESS. CHAR. PILEUS with separate Tubes underneath.
SEEDS in the Tubes.

FISTULINA *hepat'ica*. Tubes very slender, unequal. Pileus thick, soft, flesh coloured.—

Bull. 464, 497, and 74.—Mich. 60.—Schæff. 119. 118. 117. 116.
120.—Bolt. 79.

TUBES white, to yellow red, unequal in length, very slender; distinct from each other, not fixed side to side or buried in the substance of the flesh.

PILEUS semi-circular, flesh red, pulpy.

STEM thick, red, lateral, sometimes wanting. BULLIARD; whose admirable drawings should be consulted in order to gain a good idea of the structure of this very singular plant. When grown to a good size it looks exactly like a piece of beeve's liver. In the different figures cited above the under surface appears of very different colours, which Mr. Bulliard attributes to the presence or absence of pink coloured roses which close up the mouths of the tubes, but are detached before the seeds are poured out. This may in part account for the change, but it may be observed that the Tubes themselves are also of different colours, viz. green, and brown red. BULL. 464, 497, BOLT. 79, MICH. 60, and SCHÆFF. 117, 118, forming the green tubed, and the others the red tubed species or variety. Not having had sufficient opportunities of examining the plants in a recent state, I mention these circumstances in hopes that others who more frequently meet with them, will attend to them at different ages, and determine the matter. The fig. of Micheli is excellent, and the structure of the tubes did not escape his penetrating eye, as appears by the dissected figures at the bottom. He remarks that the pileus is rusty red, the flesh blood red, the tubes dirty dull yellow, bordered at the mouth. MICH. p. 119.—This plant attains its growth in a few days, and is of short duration. BULL.—Lobes elliptical, generally issuing from a short stem. In infancy it is viscid, pulpy, and exuding on being pricked a bloody water, colour deep red. When mature the upper side gets rough and hairy, and turns blackish red or deep chocolate. The under side does not assume the form of pores till a late period. It appears at first cream coloured, and is studded very beautifully with pearl-coloured pimples, interspersed with some of a blood red.

The pores and tubes are extremely minute, being like so many needles huddled together, nor is the aperture of the tubes very discernible without being magnified. They are hardly $\frac{1}{2}$ inch deep. The flesh of the plant now appears dry and stringy. Mr. STACKH.

Fistulina buglossoides. BULL. Boletus hepaticus. SCHÆFFER. HUDS. Ag. porosus rubens. RAY. syn. 23. n. 12.

Seems to grow only on oak, but not always on high trees. Mr. WOODWARD.—On dead trunks, or in hollows of living trees.

Sept. Oct.

reversed **FISTULINA** *pectinata*. Tubes yellow white, slanting. Pileus a leathery crust.—

Bolt. 74.—Ray. syn. t. 1. f. 5, at p. 28.

Fixed by the pileus, the tubes uppermost.

Pileus the colour and consistence of a cow's hide, but softer, upon which are fixed the tubes, not united and contiguous, but separate. Tubes, the central ones the longest, some near $\frac{1}{2}$ inch long. It grows in patches of various sizes, and no determinate shape. Colour white, to buff, browner with age, and black in decay.

In woods, and in cellars. RAY. BOLTON.

P.

Ag. pectinatus. HUDS.—Bol. obliquus. BOLTON.

The Bol. lachrymans may possibly belong to this.

1326. BOLE'TUS.

Ess. CHAR. PILEUS with united tubes underneath.
SEEDS in the tubes.

A. STEMS central.

* TUBES white.

transparent **BOLE'TUS** *pellucidus*. Tubes white, very short. Pileus concave, rich brown, scaly. Stem whitish, thick, short.—

Scheff. 122.

TUBES decurrent, very short, white, semi-transparent. Pores white, minute, angular.

PILEUS rich brown, scaly, hollow in the middle, turned down at the edge, 2 inches over.

STEM

STEM whitish, its upper part covered with tubular pores, rather conical, $\frac{1}{2}$ inch long, and as much in diameter.

Schæffer in pl. 121, has figured another plant with a smooth pileus, which he thinks is the same, and calls them both *B. ovinus*. On account of the uncertainty of their identity, I have thought it better to give it a new name; to say nothing of the unmeaning application of the old one. This species is subject to be over run by the white and the yellow *Reticularia* of Bulliard. Schæffer's pl. 121 is cited by Mr. Hudson as the *B. subtomentosus* of Linnæus, which see.

Pool dam, Edgbaston.

6th Aug. 1791.

BOLETUS *subfus'cus*. (SCHÆFF.)—Tubes white, very *pale-brown* short. Pileus light brown, regularly convex. Stem pale brown. Root conical.—

Schæff. 130, may serve to give some idea of it, though it is not the plant.

TUBES white, $\frac{1}{2}$ of an inch in length, pretty firmly fixed to the pileus. Pores white or brownish white, very minute.

PILEUS light brown, smooth, uniform, clothly to the touch, convex, 4 or 5 inches over. *Flesh* very white.

STEM pale brown, covered with a beautiful white net-work over its whole surface, 3 inches high, and 2 inches diameter. Root conical.

Much like the *Bol. elephantinus* in its habit, but differs in the colour of its tubes, stem, and pileus, as well as in the form of the latter. No part of it changes colour on exposure to the air.

Edgbaston Park, under the large oak near the wall of the square stew. Sept.

BOLETUS *polyp'rus*. Tubes white and very short. *eccentric* Pileus brown, irregular; flesh very thin. Stem brown, rarely central.—

Bull. 469.

TUBES where longest about 1-10th of an inch, in some places not 1-20th. Pores yellowish white, circular, so small as hardly to be perceptible to the naked eye.

PILEUS flattish, but irregular, the edge cooped in and depressed in places, cracking, from 3 to 6 inches over. *Flesh* not 1-10th of an inch in thickness. When the pileus is quite central on the stem, it hangs flapping down on every side.

STEM dark brown above, paler below, tough, thickening upwards, 2 inches long, $\frac{1}{2}$ to 1 inch diameter. The stem varies in every degree

degree of eccentricity, from perfectly central, to perfectly lateral, in which last state it is well figured, though from small plants, in
Bolt. 168.

Mr. Bolton observes the change it undergoes when very old, and Mr. Bulliard has a figure which pretty well represents it in that state, though I am aware it is an old plant of a different species, vide
Bull. 360.

But in their very old and woody state these plants lose their distinguishing characters.

Gathered in all the above different states at the foot of some paling in the old Worcester road facing the cottage by the Park Gate, Edgbaston. June.

orange **BOLE'TUS** *aurantia'cus*. (BULL.)—Tubes whitish. Pileus red orange. Stem whitish, rough.—
Bull. 236 and 489. f. 2. R. S.

TUBES not decurrent, brownish white, 1-3d of an inch long, readily separating from the pileus. Pores brown white, circular or angular.

PILEUS convex, full orange red, viscid, 4 to 6 inches over, and sometimes much larger, thin at the edge, and without tubes for about 1-10th of an inch. *Flesh* yellowish white, not changing.

STEM whitish, or pale yellowish white, rough with coloured pimples like the skin of a goose, thickest downwards, either rounded or pointed at the base; spongy within, 2 to 3½ inches high, ½ to 1 inch or more in diameter.

Fir plantations at Bar, Staffordshire.

June.

** TUBES brown.

sponge **BOLE'TUS** *bovi'nus*: (LINN.)—Tubes pale yellowish brown, unequal in length. Pileus brown or olive, clammy. Stem thick pale brown with rusty stains.—

Boletus stipitatus, pileo glabro pulvinato marginato, poris compositis acutis, porulis angulatis brevioribus. LINN.

Bull. 60.

TUBES pale yellowish brown, not touching the stem, the longest ¾ to ½ inch long. Pores brown white, becoming more brown, and red brown with age.

PILEUS convex, thin at the edge, dark brown to olive, or tawny brown, viscid; 3 to 6 inches over. *Flesh* very thick, spongy, white, not changing colour.

STEM

STEM dirty white with reddish stains, white in the flesh, but sometimes with a reddish tinge, 3 to 7 inches high, and $\frac{1}{4}$ to $1\frac{1}{2}$ inch diameter.

This species, though not uncommon, has been the occasion of great confusion, partly because it had never been well figured before the 60th plate of M. Bulliard appeared, and partly from the Linnæan character holding forth the inequality of the pores as its most prominent feature. It is true, the pores appear very much like a piece of sponge, both in colour and shape, and admit of great variety in size and figure, especially as we find sets of tubes together, opening with small pores, surrounded by other longer tubes, which Linnæus calls compound pores. This is a striking circumstance, but as it likewise exists in several other of the larger Boleti in their fully expanded state, instead of aiding the discrimination it has promoted the confusion of the species. Not less than ten of the plates of Schæffer have been first and last given to this plant, though none of them represent it except 103, and 104, which are varieties, and 134, and 135, which may also be varieties, but it does not appear that they are known as British plants.

Schæff. 105, is the *B. luteus*, with bright yellow tubes and pores, and a crimson and yellow stem.

—— 107, has green yellow tubes and crimson pores, and is *B. rubiolarius*.

—— 108, is a variety of the *B. luteus*.

—— 112, has green yellow tubes and pores, with an orange pileus.

—— 130, has lemon coloured tubes and pores, a dotted brick red pileus, and a yellow and pinky stem.

—— 133, is the *B. lactifluus*, with a milky or yellow juice.

Micheli t. 68, 69, generally; 68. 1. and 68. 1, 2, more particularly have been referred to for the *Bol. bovinus*, also Battar. 29. A. B, and 30. A. B; but notwithstanding a general resemblance in the figures, the descriptions of the authors give little reason to believe that they are the plant.

Edgbaston Park.

End of Oct.

VAR. 1. Tubes pale, yellowish; Pores tawny. Pileus buffy brown. Stem red brown, reticulated at bottom.

Bolt. 35.

Tubes not touching the stem; Pores round, small. Sept.

VAR. 2. Tubes brown white. Pileus brown, clothly. Stem dirty white, tapering greatly upwards.

Bolt. 86.—Schæff. 104, but the tubes represented more yellow than ours.

TUBES not connected with the stem, brown white, hardly $\frac{1}{4}$ of an inch long. Pores dilute watery brownish white, irregular in shape and size.

PILEUS warm brown, paler towards the edge, regularly convex, feels like fine cloth, cracking superficially at the edge, but not so as to shew the flesh. *Flesh* white, changing slowly when cut to a pinky cast.

STEM dirty white, pearshaped at bottom and tapering upwards, 4 or 5 inches high, $\frac{1}{2}$ to $1\frac{1}{4}$ diameter. *Flesh* white, that of the bulbous part changing slowly to a bluish, but that above to a pinky cast.

Pastures, Edgbaston.

August.

VAR. 3. Pileus dark brown. Stem rough with scurfy scales pointing upwards.

Bull. 132, and 489. f. 1.—*Schæff.* 103.

Stem more cylindrical than in the preceding.

Pastures, Edgbaston, with the former.

August.

*** VAR. 4.** Pores white, angular. Pileus brown, scaly and tessellated.

Dickf. 3. 2.—*Scop. ann.* iv. 1. 5.

Pores very white. *Pileus* dark brown, hard, about 2 inches over, the surface tessellated something like the cone of a fir. *Stem* thick, 3 or 4 inches high. **DICKSON.**

Found by Mr. Lightfoot in woods near Bullstrove, Buckingham.

August.

perennial **BOLE'TUS** *peren'nis*. (LINN.)—Tubes ochrey brown. Pileus flattish, hollow in the center, striated, marked with alternate circles of brown and tawny. Stem red brown.—

Bol. stipitatus, perennis, pileo utrinque planiusculo. LINN.

Bull. 28, *coriaceus*.—*Schæff.* 125.—*Bull.* 449. 2.—*Bolt.* 87.

TUBES decurrent, ochrey yellow brown, not separating from the pileus, extremely short. *Pores* round or angular.

PILEUS flattish, hollow in the center, striated with hairs, marked with alternate circles of brown and tawny; 1 to $1\frac{1}{2}$ inch over; leathery.

STEM red brown, often eccentric, 1 inch long, thick as a raven's quill.

M. Bulliard remarks the disposition of the Pilei to unite when they happen to grow in contact with each other.

Stem short, small wiry. *Pileus* very thin at the edge, chocolate colour when young, with a greenish cast when old. *Pores* irregular, small, snuff-coloured. The whole plant is leathery or woody, and frequently comes up so thick that the pilei run into one another. **MR. STACKHOUSE.**

Dean and Chapter Grove, Hereford, on old charcoal pits. Common hillwood, Fownhope. **MR. STACKHOUSE.**

VAR.

VAR. 1. Tubes, Pileus, and Stem cinnamon colour.

Bull. 254.—*Jacq. coll.* I. t. 2.

Wholly cinnamon coloured within and without.

TUBES decurrent. Pores angular.

PILEUS flat convex, striated, thin, hollow in the center, 1 inch over; soft and silky to the touch.

STEM woolly, an inch high, and as thick as a crow quill.

Pileus thin, woolly, marked with zones; very brittle when dry.

DICKSON.

First found in this kingdom by Mr. Dickson, but given to us with no other habitat than the general one of—pastures.

Bol. cinnamomeus. JACQ.

* B O L E ' T U S *sub-tomento'sus.* (LINN.)—Pores woolly tawny, rather angular, of different shapes. Pileus yellow, somewhat woolly. Stem yellow.—

Bol. stipitatus, pileo flavo sub-tomentoso, poris sub-angulatis difformibus fulvis planis, stipite, flavo. LINN.

Mich. 63.2.

Pileus convex, fleshy, by no means smooth or clammy; sharp at the edge. Pores with blunt angles, the ends forming a plano-concave surface. Stem smoothish. *Fl. Suec.*—This is introduced on the authority of Mr. Hudson, who refers to Schæff. t. 121, with yellowish white pores, and a whitish stem.

In woods near Esfar, Surry. HUDS.

Sept. Oct.

B O L E ' T U S *rubecola'rius.* (BULL.)—Tubes olive red-brown colour; pores rich red brown. Pileus and stem red cinnamon.—

Bull. 100, and 490. 1.—*Schæff.* 107.

TUBES olive colour, fixed to the stem. Pores rich red brown, variously shaped, but mostly oval.

PILEUS red cinnamon, convex, soft to the touch and rather clammy.

Flesh thick, spongy, buff colour, instantly turning blue when wounded.

STEM red cinnamon and bulbous below, yellow, reddish, and cylindrical above; spongy within, and rich yellow, but instantly changing to a blue; $2\frac{1}{2}$ to 3 inches high, $\frac{3}{4}$ to $1\frac{1}{4}$ diameter.

In its young state the pores are crimson, and the center of the pileus of a chocolate colour.

Edgbaston Park, under Spanish chestnut trees.

Aug.

*** TUBES buff.

horny BOLE'TUS *nummularius*. (BULL.)—Tubes very short, buff colour. Pileus colour of horn, convex, dimpled. Stem colour of horn, black at the base.—

Bull. 124.

TUBES loose from the stem, buff, very short. Pores angular; general surface underneath the pileus concave.

PILEUS the colour of brown horn, with a black circle at the edge, gently convex, but hollowed in the center; tough like leather, smooth, very thin.

STEM colour of brown horn, black at the base, smooth, 2 inches high, thick as a goose quill.

Mr. Bulliard figures the stem as more or less eccentric, and says they are always so, but the specimen from which the preceding description was taken is an exception to this observation. Mr. Dickson observes that it is chiefly found on slender rotten branches of hazel. He quotes the fig. of Bulliard, cited above, and in his second fasc. refers Bolt. 83, to this plant, but I think Bolton's is a different species.

On a piece of rotten stick by the tail of the pool in Edgbaston Park. 16th March, 1791.

**** TUBES yellow.

elephant BOLE'TUS *elephantinus*. Tubes yellow, short. Pileus dead white, convex, but very irregular. Stem yellow, thick and short.—

(Schæff. 134 and 135, nearly resemble it, except in colour.)

TUBES yellow, the longest not more than 1-3d of an inch, adhering firmly to the pileus. Pores very small, circular.

PILEUS dead white, convex, but very irregular in shape, from 2 to 4 inches over, downy in the depressed parts, cooping in, and so thick in flesh as to leave but little space for the tubes.

STEM yellow, 1 to 2 inches high, and nearly as much in diameter.

I have named it from its thick clumsy stem, and its general massy appearance.

Red Rock plantation, Edgbaston Park.

Sept. 1791

eatable BOLE'TUS *edulis*. (BULL.)—Tubes yellow. Pileus brown. Stem light brownish yellow.—

Bull. 494.

TUBES yellow, more than $\frac{3}{4}$ of an inch long, not fixed to the stem readily separating from the pileus. Pores yellow, circular, small for the size of the plant.

PILEUS

PILEUS pale or deeper brown, with rust-coloured patches, nearly globular and 5 or 6 inches over when opening, but a flat convex and 7 or 8 inches across when fully expanded. *Flesh* white, not changing colour when wounded.

STEM light brownish or yellowish, 3 to 5 inches high, $1\frac{1}{2}$ diameter, tapering upwards.

Mr. Bulliard reckons this a variety of the *B. bovinus* of Linnæus. Fir Plantations at Bar, Staffordshire, the residence of Mr. Galton. Aug.

* **BOLETUS** *gregarius*. Tubes yellow; pores *clustered* oblong, unequal. Pileus thin, flattish, dark or pale chestnut. Stem pale chestnut, pinky below.—

Fl. dan. 1018.

TUBES short. Pores small, angular, yellow.

PILEUS reddish yellow, clammy, smooth, thin, flat, 2 to 4 inches over. *Flesh* white.

STEM insensibly swelling into the pileus, and expanding till it loses itself in the rim; 3 to 4 inches high, $\frac{1}{2}$ inch diameter.

I met with this in the summer of 1790, and marked its singularity in being fasciculated, before I saw the plate in the *Fl. dan.* It is much eaten by insects. Mr. STACKHOUSE.

Pendarvis, Cornwall. Mr. STACKHOUSE.

* **BOLETUS** *luteus*. Tubes deep yellow. Pileus *striated* deep bay, striated. Stem dirty white. Ring permanent.

Bol. stipitatus, pileo pulvinato sub-viscido, poris rotundatis convexis flavissimis, stipite albedo. LINN.

Schæff. 114.—*Hedwig th.* 36. 210.

TUBES deep yellow, $\frac{1}{4}$ of an inch long, readily separating from the pileus. Pores round.

PILEUS rather conical, edge turned in, deep bay, darkest in the center, striated with hairiness, viscid, 3 to 4 inches over. *Flesh* white, not changing.

STEM dirty white, cylindrical, widening at the top, bulbous at the root. *Stem* membranaceous, whitish. Ring permanent.

SCHÆFFER.

Woods and pastures

Aug.—Oct.

BOLETUS *olivaceus*. Tubes bright yellow. Pileus *olive* olive brown. Stem brown below, yellow or crimson above.—

Bol. 84.—*Schæff.* 105, and 315.—(*ib.* 103, seems to be a variety.)

TUBES bright yellow, the longest next the stem about $\frac{1}{4}$ of an inch; instantly turning blue when wounded. **Pores** bright yellow, round or oval.

PILEUS olive brown, 3 to 4 inches over, edge turned down. *Flesh* yellow, instantly turning blue when exposed to the air.

STEM brown below, bright yellow or crimson elsewhere; 3 to 4 inches high, $\frac{3}{4}$ inch diameter. *Curtain* brown, fugacious.

Mr. Bulliard quotes Bolt. 84 as a synonym to his *B. annularius*, but the latter has a yellow pileus with red streaks, a permanent ring on the stem, and the flesh not changing colour when exposed to the air.

Church lane, Edgbaston, hedge banks and amongst moss. Sept,

crimson **BOLE'TUS sanguineus**. Tubes yellow. Pileus blood red, changing to rich red brown. Stem yellow, with broad crimson streaks.—

TUBES yellow, a little decurrent, unequal in length, but mostly about 1-8th of an inch long, changing to deep blue when broken. *Pores* lemon yellow, angular.

PILEUS crimson, semi-globular, $\frac{3}{4}$ to 1 $\frac{1}{4}$ inch over; when old rich red brown, near 3 inches over, and the edge turning up. *Flesh* white, a little tinged with crimson next to the skin, changing slowly to a bluish cast when wounded.

STEM blotches or streaks of dilute crimson on a yellow ground, apparently twisted, 1 to 2 $\frac{1}{2}$ inches high, near 3-8ths diameter. In the larger specimens the base is bulbous.

I have never found this species elsewhere than on the spot mentioned below, and no author I meet with has figured it. In its button state the blood red pileus, the yellow and crimson stained stem, and the fine lemon coloured pores render it a beautiful object. I once only found it in an expanded state as described above, growing on the same spot, but am rather doubtful as to the identity of the species.

Between the large square stew and the wall, in Edgbaston Park.

Aug.

pinky **BOLE'TUS chrysen'teron**. (BULL.)—Tubes yellow, decurrent. Pileus gently convex, pinky red. Stem yellow below, pinky upwards.—

Bull. 393.

TUBES decurrent, yellow, 1-3d of an inch long, changing to greenish when broken. *Pores* yellow, round or oblong.

PILEUS a flat convex when fully expanded, pinky red, 2 to 3 inches over.

STEM

STEM yellow below, pinky upwards, swelling below, but tapering again at the root; 2 inches high, $\frac{1}{2}$ inch diameter.

Rookery, Edgbaston.

July.

BOLETUS *flavus*. Tubes brown yellow, a little yellow decurrent. Pileus orange, shining, viscid. Stem yellow.

Bolt. 169, excellent.—(Bull. 332, nearly allied to it, but not the same.)

TUBES brownish yellow, a little spreading down the stem. Pores lemon colour, irregular in shape and size, the larger ones divided by partitions, the ends of the partitions shorter than the ends of the larger tubes.

PILEUS convex, edge rather turning up, deep orange when young, paler with age, shining with a viscid varnish, 2 to 4 inches over. Flesh pale yellow, not changing when cut.

STEM yellow, 1 to 3 inches high, cylindrical, $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter.

Curtain white, connecting the edge of the pileus with the stem, and leaving a ring on the stem.

Mr. Bolton cites Bull. 332 for this plant, but it differs in its dry pileus with red streaks, and its white flesh.

In several of the plantations in Edgbaston Park. Aug. Very frequent in the pleasure grounds at Enville. June.

BOLETUS *lactifluus*. Tubes yellow. Pileus red milky buff. Stem bright yellow. Juice like milk.—

Schæff. 133, (nearly the same.)

TUBES in contact with the stem, yellow, less than $\frac{1}{4}$ of an inch in length. Pores bright yellow, very minute. They seem as if filled up by the exudation of an inspissated juice.

PILEUS reddish buff, or fawn-colour, very convex, viscid, 2 to 4 inches over. Flesh thick, white, solid.

STEM bright yellow within and without, paler with age, $\frac{3}{4}$ to $2\frac{1}{2}$ inches long, 3-8ths thick.

When fresh gathered the plant abounds with white milky juice, not acrid. Its flavour is like that of the *Ag. campestris*. When old the milk is less abundant. Schæffer's plant is described as having a yellow juice, and the pileus purplish red; in other respects they agree.

Edgbaston Park.

5th Aug. 1791.

* BOLETUS *substrictus*. (BOLT.)—Tubes dirty yellow; pores minute. Pileus dirty yellow, convex, thin. Stem dirty yellow, hard, tough, sometimes eccentric.—tough

Bolt. 170.

TUBES, the longest about $\frac{1}{4}$ of an inch. Pores pale yellowish colour, minute, regular, angular when magnified.

PILEUS

CRYPTOGAMIA. Fungi.

PILEUS yellow brown olive, inclining to ash colour, gently convex, thin at the edge, smooth, tough, leathery, 1 to 2 inches over. *Flesh* thin, white.

STEM dusky or yellowish, white within, cylindrical or compressed, hard, tough, 1 to 2 inches high, thick as a goose quill. **BOLTON.** Near Darlington, and North Dean near Halifax.

B. STEMS lateral.

* **TUBES** white.

lacquered * **BOLE'TUS rugosus**. (JACQ.)—Tubes white. Pileus chestnut coloured, shining. Stem hard, uneven, chestnut coloured, shining.—

Curt. 224.—*Bull.* 7 and 459.—*Jacq. fl.* 169.—*Batsch.* 225.

TUBES very white. Pores exceedingly small. **THUNB.** jap. t. 39.

PILEUS flat, semi-circular, or more; highly polished, marked with concentric grooves; edge thick, wrinkled, 3 to 8 inches over.

STEM lateral, chestnut coloured, hard, uneven, shining as if varnished, 3 to 5 inches high, 1 to 2 inches in diameter. Sometimes without a stem. **Mr. WOODWARD.**

Bol. lucidus. **CURT.** **Bol. obliquatus.** **BULLIARD**; who describes his plant as varnished in every part except where the pores are, but has not expressed it so in his figures. *Pileus* oblique, lateral, purplish brown, wrinkled in circular wavy lines, highly varnished, puckered at top, a wave of dirty white at the rim. Pores very minute, dirty white. Stem thick, crumpled, colour of the pileus. **Mr. STACKHOUSE.**

Stumps of trees. Everden and Linton Woods, Cambridgesh: [Ditchingham and Brome. **Mr. WOODWARD.**—Woolhope, Herefordshire. **Mr. STACKHOUSE.**]

July—Sept.

foliated * **BOLE'TUS frondosus.** Tubes white. Pileus brown, lobed, tiled. Stem black at the base, very irregular.—

Fl. dan. 952.—*Schæff.* 128. 129.—*Bolt.* 76.—*Barr.* 1268.

TUBES decurrent, white, about 1-10th of an inch long. Pores very small, very numerous, circular, or angular, sometimes confluent.

PILEUS pale yellowish brown to deeper cinnamon, leathery, waved, lobed, sometimes jagged, lobes tiled one over another, 2 inches wide and rather more in length.

STEM very irregular and misshapen, expanding so as to form the pileus, about an inch high, or more, sometimes almost covered with pores, never central, black at the base, several together in clusters, near an inch broad. **RELHAN. DICKSON.**—I saw one at Brome growing at the bottom of an old tree, which measured nearly

nearly 2 feet across, and the tiled lobes next to the tree more than 6 inches deep. Mr. WOODWARD.

BOLETUS *betulinus*. Tubes pure white, very short. *pinky-brown*
Pileus pinky brown, edge curled in. Stem black.—

Bolt. 159.—(not Bol. betulinus, Bull. 312.)

TUBES very white and short, from 1-10th to 1-50th of an inch long.

Pores very minute; general surface concave.

PILEUS smooth, oblong, convex, curled in at the edge, pinky brown, thin, flexible, often divided into tongue-shaped lobes.

Flesh white, $\frac{1}{4}$ of an inch thick, very thin at the edge.

STEM lateral, black, 1 to 2 inches long, $\frac{1}{2}$ inch diameter.

Whole plant leathery, tough, 2 to 4 inches wide, and 3 to 8 inches long; looks when growing, and smells like the *Ag. ostreatus*. The tubes do not separate from the pileus except in the older plants; in the young ones I have found it next to impossible to detach them.

On the stump of an ash tree; Edgbaston.

May.

BOLETUS *squamosus*. Tubes yellow white; pores *scaly*
large, angular. Pileus pale buff, pencilled with feather-like scales.—

Fl. dan. 893.—Schæff. 101 and 102.—Bull. 114.—Bolt. 77.—Batsch.

41.—Sterb. 13, and possibly 14.

TUBES short, nearly white, slanting. Pores large, whitish, angular, varying much in size.

PILEUS pale buff, adorned with feather-like scales of a deeper dye, sometimes with a tinge of red, semi-circular, or fan-shaped, from 5 to 14 inches over. Flesh white, firm, elastic.

STEM lateral, dark-coloured, white within, from 1 to 2 inches long, and as much in breadth.

It has a rank fungous smell, and is apt to abound with maggots.

On the stumps of various kinds of trees; much crowded together.

In the rick yard, Edgbaston, on the stump of an ash. June.

* * * TUBES yellowish.

* **BOLETUS** *rangiferinus*. Pores yellowish. Pileus *deers-horn*
dirty yellow. Stem dark brown, branched.—

Phil. trans. abr. x. pl. 20. f. 109, at p. 705; cop. in Blackst. frontispiece.—Bolt. 138.—(Dr. Stokes thinks that fl. dan. 405, and Schæff. 326, are the plant not yet arrived at maturity.)

TUBES decurrent, dirty yellow, ragged at the extremity.

PILEUS an expansion of the stem, dirty yellow, oblong, about 2 inches by $1\frac{1}{2}$.

STEM dark brown, $1\frac{1}{2}$ to 3 inches high, thick as a swan's quill, often with one or more lateral branches, splitting at the end into several horn-shaped

hornshaped branches, with yellow tops, or else expanding into the pileus. Root a congeries of brown substances as large as hazel nuts. BOLTON.—The whole plant bears a resemblance to the palmated branching horns of the larger species of deer. Professor Martyn, who first published an account of it, says, that his plant was 2 feet high. It was of a dusky red colour, inclining to black; the pores and the tips of the horns of a cream colour. Both Mr. Martyn's and Mr. Bolton's plants were found affixed to a log of wood in a cellar.

slipper BOLE'TUS *calce'olus*. (BULL.)—Tubes buff colour, pores very small. Pileus deep buff to chestnut, hollowed in the middle, thin and waved at the edge.—

Bull. 46, *Bol. elegans*, the chestnut coloured pileus; ib. 445. 2, the buff pileus; ib. 360, an old plant, which if it was not for the decurrence of the pores on the stem would also represent the *Bol. polyporus* in its old and woody state.

TUBES decurrent, the longest near $\frac{1}{4}$ of an inch. Pores buff colour, small, but not all of the same size.

PILEUS deep buff to chestnut colour, firm and hard to cut, like a cork, hollowed near the insertion of the stem, thin and waved or curled at the edge, 2 to 4 inches over.

STEM lateral, sometimes approaching to central, tough, white, conical, gradually losing itself into the pileus and becoming covered by the pores, so that it is difficult to decide its length, which however may be considered as near an inch in the larger specimens, and $\frac{1}{4}$ th to $\frac{3}{8}$ ths diameter. The plant is much crowded in its growth, so that the substance of one often unites with the substance of those adjoining it.

Stump of an ash tree, rick yard, Edgbaston.

June.

leather-like * BOLE'TUS *latera'lis*. (BOLT.)—Tubes yellow, very short. Pileus dead yellow, thin, smooth. Stem yellow.—

Bolt. 83.—Battar. 34. A.

TUBES about a line in length. Pores circular, so minute as not to be discernible by the naked eye.

PILEUS yellow, smooth, flat, very thin, leather like, 1 to 2 inches in diameter.

STEM lateral, dull yellow, gradually spreading out at its top so as to form the pileus, $\frac{1}{2}$ to near 1 inch long, $\frac{1}{4}$ in diameter. Root hard, black. BOLTON.

On the trunk of a fallen willow.

August.

C. STEM-LESS.

* TUBES white.

BOLETUS *suberosus*. (LINN.)—Tubes white, cork pointed. Pores irregular. Pileus white, convex, smooth, thin.—

Bolt. 162.—Bull. 482. F.

Bol. acaulis, pulvinatus, albus, lævis, poris acutis difformibus. Snowy white; soft as sponge. LINN.

Pileus arched, thin, wrinkled, sometimes marked with zones, grey white, very watery when young. BULLIARD.—Tubes of unequal lengths. Pileus white, downy when young, smooth when old, but made uneven by rising bunches. BOLTON.—This is known from its perfect resemblance to cork. Lobes thick. Pores irregular in their shape. Bull. C. D. G. are redder than I have seen it. Mr. STACKHOUSE.

Trunks of ash trees in Westmoreland, common. P. [Plentiful near Bath, on stumps of trees. Mr. STACKHOUSE.]

BOLETUS *medulla-panis*. (JACQ.)—Wholly white, pith-like crustaceous, spreading. Pores on the upper surface only; slanting.—

Jacq. misc. 1. 11.—Bolt. 67, the lower figure.—Mich. 63. 2.

Crustaceous, white, spread thin, accommodating itself to the surface of the ground or of the rotten wood on which it grows, from 1 line to several in thickness, soft when young but firm. Pores very small, cylindrical, numerous, a little slanting, covering the whole upper surface only. JACQUIN.

On rotten wood. DICKS. 18. and decayed branches of trees. RELH. n. 1044.—[I found this in a ploughed field near Bungay, apparently growing on the ground, but on examination it arose from a decayed root near the surface. Mr. WOODWARD.—On the bark of fallen trees in the rookery, Edgbaston.] April.

VAR. 1. Pores very shallow.

Bolt. 166.

On the stump of a tree that had been sawn off; Edgbaston.

BOLETUS *salicinus*. (BULL.)—Tubes white to willow tawny; very short. Pileus semi-circular, whitish, smooth, thin, soft, leathery.—

Bull. 433. 1.

Tubes

CRYPTOGAMIA. Fungi.

Tubes hardly the tenth of an inch long. *Pileus* not marked with concentric circles, always smooth and thin, from 2 to 5 inches over. It is seldom found in clusters; always on sickly or dead willows. Sometimes it sends out fibrous roots between the bark and the wood. Substance soft, leathery, not hard like cork; its duration not more than 2 or 3 months. BULLIARD.—This grows out of decayed willows; it is dry and leathery. *Pores* oblong, sweet smelling, pale brown, resembling a honey comb in structure. Mr. STACKHOUSE.

Bol. albus. HUDSON.

On willow trees, very common.

May—Oct.

VAR. 1. *Pileus* white, downy, scolloped and almost curled at the edge.

Bolt. 78.

TUBES white, turning to a dirty red when cut or bruised; nearly 1-10th of an inch long. *Pores* very irregular in shape and size. *PILEUS* white, downy, when this is rubbed off, red brown; 7 inches long, 3 inches broad, thin at the edge, and waved, 1½ inch thick at the base.

Hedge banks, Edgbaston, fixed to half rotten wood.

July.

The specimens I have seen were larger than figured and described by Bolton; the margins were lobed and waved, but not with so much elegance. Mr. Bolton's fig. being taken from a small plant, it might grow with more regularity. Mr. WOODWARD.

Ditchingham near Bungay, and at Difs, Norfolk. Mr. WOODW.

sweet BOLE'TUS *suave'olens.* (LINN.)—Tubes very long, white changing to tawny. *Pileus* smooth, semi-circular, white or tawny. *Flesh* yellow brown. BULL.

Bol. acaulis, superne lævis, salicinus. LINN.

Bull. 310.—*Walc. n. 4. B. suberosus.*

TUBES at first whitish, changing to straw colour, and then to tawny, especially at the ends, ½ an inch long or more in large specimens. *Pores* irregular.

PILEUS at first white, tawny, brownish and marked with concentric circles as it grows old. *Flesh* white or yellowish, compact, like cork. Diameter from 2 to 5 inches or more. Its odour penetrating and agreeable, but it loses this with age, and even in the younger plants when thin it is not always perceptible. BULLIARD.

On the trunks of willow trees, in autumn, not uncommon; continuing about a year.

Sometimes growing tiled one above another to a very large size. *Pileus* frequently tinged with orange. The *B. albus* of Hudson is thicker at the base and more regular in its figure. Mr. WOODWARD.

On old oaks and other trees, frequent. Mr. WOODWARD.

BOLETUS *spongiosus*. (LIGHTF.)—Pores whitish, spongy fringed, angular. Pileus brown, woolly.—

Battar. 33. D, E, F, G, H. — Clus. ii. 265. 2, cop. in J. B. iii. 831. 2.

Sitting, horizontal, semi-circular, convex, sometimes as big as a peck measure. LIGHTFOOT.—Very elegant when young, turning quite black when old. Seeds when ripe falling out in form of a yellow powder, and when examined appearing fastened to a slender hair-like thread like the beads of a necklace. These filaments often hang down forming festoons, from the under surface of the pileus. Mr. WOODWARD.

B. villosus. HUDS. 626.

Trunks of trees. [Mostly on elms, and often exceeding the trunk of the tree in diameter. Mr. WOODWARD.]

* **BOLETUS** *la'chrymans*. (WULFEN.)—Tubes white. *dry-rot* Pileus orange coloured, wrinkled, reticulated, with a broad, white, arched border.—

Jacq. Misc. ii. 8. 2. — Bolt. 167, upper figure. — Scop. sub. 9. 3.

Stemless, leathery, half oval, one or two lines thick, 3 inches long, $1\frac{1}{2}$ broad, smooth, flesh white. The under surface in contact with the wood or the walls, white, smooth, without pores; but the white border contains the pores, which are sometimes also found in the yellow part. The pores are circular, or quadrangular, or compressed, and contain water. WULFEN, in Jacq. misc. ii. p. 111.

In heaps on dale planks in places exposed to wet where they communicate with the walls. DICKSON. fasc. i. p. 18; excluding by the advice of Mr. Woodward the references to Ray and Hudson.—[On decaying wood in cellars frequent. Not uncommon on gates and posts exposed to the weather, but in such situations does not spread much. Mr. WOODWARD.]

BOLETUS *versicolor*. (LINN.)—Tubes white. *striped* Pileus striped with different colours.—

Bol. acaulis, fasciis bicoloribus, poris albis. LINN.

Bull. 86.—Schaff. 268 and 269.—Ech. 81.—Valc. n. 9.—Battar. 35. A.

Pores very minute; Tubes very short, wearing out with age. Mr. STACKHOUSE.—Tubes very short. Pores circular or angular, varying in size. Pileus thin, velvety, striped in concentric circles of various colours. This plant is very common. In its first stages of growth the pores are uppermost, in time it quits its attachment by the pileus and reverses itself, as explained in the *Ag. quercinus*.

On trees, rails, and stumps.

P.

** TUBES

* * TUBES brown.

yellow-brown **BOLE'TUS** *cuticula'ris*. (BULL.)—Tubes dark brown, long. Pores rich yellow brown. Pileus dark red brown, semi-circular, very uneven.—

Bull. 462.

TUBES long, darker brown than the flesh. Pores minute, regular, rich yellow brown, when turned sloping to the light exhibiting silvery reflections like the pile of velvet.

PILEUS rich dark red brown, often whitish at the edge, strongly marked and made very uneven by concentric ridges; sometimes one stratum of the plant laid on another, 3 to 5 inches wide, $1\frac{1}{2}$ to 3 inches broad. *Flesh* thin, brown.

On a dead alder stump below the cascade by the side of the brook, Edgbaston Park. Dec.

long-tubed **BOLE'TUS** *crypta'rum*. (BULL.)—Tubes rust coloured, very long. Pileus rust coloured, thin, supine.—

Bull. 478.—*Bolt.* 165.

Tubes $\frac{1}{2}$ an inch or more in length, constituting almost the whole substance of the plant. Pores rusty brown, very minute. Pileus thin, leathery, or spongy, soft, adapting itself to the wood on which it grows, and serving as a base on which the tubes are erected. BOLTON. BULLIARD.—In M. Bulliard's plate the plants are represented as growing in great masses, and cupping up. These grew in vaults upon hewn timber. Mr. Bolton found his on dry decayed boughs of hazle. Feb.

rugged **BOLE'TUS** *lab'yrinthi'for'mis*. (BULL.)—Tubes red brown, long. Pores sinuous. Pileus rugged, zoned, brick red.—

Bolt. 160.—*Bull.* 491. 1.

Tubes $\frac{1}{4}$ to $\frac{1}{2}$ inch long, reddish brown. Pores sinuous or labyrinth formed, greyish or reddish brown. Pileus rough, wrinkled, marked with distant concentric circles of a lighter or darker brown colour, semi-circular, $1\frac{1}{2}$ to 2 inches radius. *Flesh* woody, pale brown, veined, smooth. BOLTON. BULLIARD.—*Lobes* many from one root, waved at the edge, pustulated on the upper surface; reddish brown. Pores oblong, angular and sinuous. Mr. STACKHOUSE; to whose attentions I am indebted for a specimen.

On old trees, and roots. [Trunks of trees cut off, or on the adjoining ground. Mr. STACKHOUSE.]

Sept.

B-O-

BOLETUS *unicolor*. (BULL.)—Tubes grey brown. *self-coloured*
Pores labyrinth-formed. Pileus woolly, with zones of
different shades of the same colour.—

Bull. 408, and 501. *f.* 3.—*Bolt.* 163, *young plants.*

Tubes $\frac{3}{4}$ of an inch or more in length. *Pileus* thin, semi-circular,
leathery, mostly brown or red brown. BULLIARD.—In habit much
resembling the *B. versicolor*, but differs in the colour and length of
the tubes. *Pileus* sometimes green.

On trees, stumps, and rails, not uncommon.

P.

*** TUBES red.

* **BOLETUS** *lacinia'tus*. Tubes very short. Pores *fringed*
blossom coloured. Pileus brownish or ash coloured, arched,
warty, thin, fringed at the edge.—

(*Bull.* 366. *Boletus imbricatus* is something like it.)

Tubes very short and slender; pores very minute, blossom colour.
Pileus very thin, lobed; lobes arched and hanging over each other,
an inch wide and $1\frac{1}{2}$ long, leathery, deeply fringed at the edge, sur-
face pustular, mottled, yellow brown or ash colour. *Root* and thickest
part of the pileus like cork. Description and drawing from Mr.
STACKHOUSE.—M. Bulliard's *Bol. imbricatus* seems something like
it, but is a much larger and more luxuriant specimen, perhaps also
in an older state, for the pores have a deeper shade of colour. It
however is more bright in its tints, and wants the warty tubercles
on the pileus, so that I dare not cite it as the same.

Comb Wood near Bath. Mr. STACKHOUSE.

* VAR. I. Pileus smooth, downy, sending out root-like suckers from
the under side.

Substance hard, leathery. Dull blossom colour underneath. It
is rather yellower than the preceding, and had some brown striae on
the pileus.

Found near the former, of which it may be only a variety. Mr.
STACKHOUSE.

BOLETUS *hispidus*. (BULL.)—Tubes yellow red, *bristly*
fringed. Pileus bright red brown, rough with bristly
hairs.—

Bull. 210.

Blood red when young, in middle age the pileus purplish brick
red, the pores blackish tawny; in old age black. The plant is stem-
less, soft, leathery, very fleshy, 4 inches wide. BULLIARD.

Chiefly on old oaks. Specimen sent me by Mr. Stackhouse.

**** TUBES yellow.

brimstone **BOLE'TUS** *fulphu'reus*. (BULL.)—Tubes and pores sulphur colour. Pileus bright aurora, streaked.—

Bull. 429, *exactly our plant*.

Sometimes grows very much tiled, the lobes 40 or more; the whole mass half a yard in length and a foot or more in breadth. In its first state it is soft like a custard. Mr. STACKHOUSE.

TUBES yellow, not longer than 1-10th of an inch. Pores very minute, irregular in shape.

PILEUS nearly semi-circular, 6 inches radius, in shape like the under shell of a very large oyster inverted, colour bright aurora, streaked; thin edge bordered with yellow, for about 1-10th of an inch in breadth. *Flesh* thin, soft, white, sometimes stained red near the upper surface, but never yellow. *Stem* next to none, but a thick mass near 2 inches in diameter fixes the plant to the tree.

This is an extremely beautiful plant, and admirably depicted by M. Bulliard. The fine sulphur yellow of the pores flies off in a few hours after the plant is gathered. The aurora colour appears on the yellow parts of the pileus whenever the surface is abraded. Some specimens grow double, one over another, from the same root.

In the cleft of a large cherry tree at Edgbaston, where a similar one was gathered the preceding year, so that it appears to be an annual. 28th June. Woolhope, Herefordshire, and in a yew tree, near Kidderminster. Mr. STACKHOUSE.

VAR. 1. Pileus pale yellow or buff, thick, tough, elastic, tiled.

Bol. 75.—*Battar.* 34. B.—*Schæff.* 132.—*ib.* 131, *its young pulpy state*.

Bol. coriaceus. HUDS.—*Bol. tenax,* LIGHTFOOT.

In hollows on the trunks of trees.

May—Sept.

plush **BOLE'TUS** *veluti'nus*. Tubes brown yellow. Pores pale brown. Pileus very irregular in shape, covered with a dense pile of a silvery grey colour.—

TUBES bright gold colour, changing to brown yellow; $\frac{1}{2}$ an inch long. Pores irregular in size, angular, light greyish brown, apparently woolly.

PILEUS a very large mis-shapen mass, covered with a stiff plushy pile consisting of upright hairs $\frac{1}{4}$ of an inch high. Colour silvery grey, changing to orange, and at length to black. *Flesh* several inches thick, chocolate coloured, with a rich red tinge, juicy. In the younger state of the plant the pile on the pileus consists of all colours from pale yellow to deep brown orange, and when magnified

magnified appears composed of stars radiating from a center. It is very beautiful seen through an eye glass, but its beauty is soon destroyed on account of its tender juicy state.

On trees, at Edgbaston, Oct. 1790; on the trunk of a fallen oak which had been stripped of its bark about 3 years ago, near Beoley, in Worcestershire. August, 1792.

VAR. 1. Tubes yellow, fringed. Pileus covered with a black or brown shag.

Bull. 493.—Bolt. 161.—Battar. 33. D. E. F. G. H.

Thick, fleshy, soft, juicy. Tubes $\frac{1}{2}$ inch long, yellow. Pileus 4 inches by 7; flesh 2 to 3 inches thick.—Consists of 1 very large lobe, growing out of the upright trunk of an ash. It is very thick in proportion to its width. Pileus, its upper side very convex, of a snuff or brown colour, very shaggy; it consists of a thick skin or coat; border deep, furbelowed, projecting downwards considerably below the flat porous surface underneath. Flesh woody, tough. Tubes near an inch long. Pores very minute, bright snuff colour. Mr. STACKHOUSE.

VAR. 2. Tubes and pores golden yellow, irregular. Pileus shaggy, golden yellow to orange brown.

Bolt. 164.

Tubes $\frac{1}{2}$ of an inch long. Pileus lobed, tiled. Flesh white, leathery. BOLTON.

Grows on the ground, under oak trees.

***** TUBES green.

BOLETUS *ignia'rius*. (LINN.)—Tubes green, grey, touchwood red, or brown. Pores yellowish changing to red brown, very fine. Pileus shaped like a horse's hoof, smooth, blackish.—

Fl. dan. 953, in a younger state, Bull. 82, and 491, E. F. in an older state; 454 in its younger states.—Schæff. 137; 138.—Scop. Subt. 22. 1 and 2.—Battar. 37. E.—Trag. 940.

Bol. acaulis pulvinatus lævis, poris tenuissimis. LINN.

Tubes of different lengths, greenish, or greyish red brown. Pileus grey brown, convex, tiled, center depressed. LINN.—Tubes very slender, equal, colour of tanned leather, in old plants stratified, a fresh layer being added every year. Pileus very hard, rubbing to a polish, marked with concentric bands or ridges, each broad ridge indicating the growth of a year, and 3 or 4 small ones that of the different seasons of the year; varying extremely in colour. Flesh fibrous. M. BULLIARD.—Size, from 2 to 7 or 8 inches over.

Trunks of trees.

CRYPTOGAMIA. Fungi.

VAR. 1. Surface not so hard, not rubbing to a polish. Flesh like cork, not fibrous.

Bull. 401.—*Bolt.* 80.—*Schaff.* 106.—*Tourn.* 330.

VAR. 2. Circular or elliptical and stratified in a cylindrical form. Pores downy.

Description and drawing from Mr. Stackhouse, who found it on cherry trees, Powick, Worcester.

On various kinds of trees. I have chiefly seen it on the cherry and the plumb.

It is made use of in Germany and some parts of England for tinder. The Germans boil it in strong lye, dry it, and boil it again in a solution of saltpetre. The Laplanders burn it about their habitations in order to keep off a species of the Gadfly which is fatal to the young rein deer. It has been used to stop the bleeding from arteries after amputations. *Phil. Trans.* vol. 48. p. 588. For this purpose the hard outer part is cut off, and the soft inner substance is beat with a hammer to make it still softer. It is best when gathered in Aug. or Sept.

tinder * *BOLE'TUS fomenta'rius.* (LINN.)—Tubes sea green. Pores circular, equal. Pileus white, convex, thick at the edge, uneven.—

Bol. acaulis pulvinatus inæqualis obtusus, poris teretibus æqualibus glaucis.

Exactly resembling a horse's hoof, white above, hardly villose. Pores numerous, roundish. Serves for tinder. LINN.

Trunks of trees.

Jan.—Dec.

β *Huds.*—Colour uniform. *RAY syn.* 24. n. 15.

On the trunk of an elm tree.

This is inserted as English on the authority of Mr. Hudson.

1327. HYD'NUM.

FUNGUS horizontal, hedge hogged underneath, with awl-shaped fibres.

ESS. CHAR. *Fungus horizontal, hedge hogged underneath.*

OBS. These awl-shaped bodies which Linnæus compares to the prickles of a hedge hog, are solid, conical, or cylindrical substances, emitting seeds from every part of their surface. BULLIARD.

ear-picker HYD'NUM *auriscalp'ium.* With a stem. Pileus semi-circular, LINN.—*sometimes circular.* LIGHTF. 1042.

Curt.

Curt. iii. 32.—*Bolt.* 90.—*Scheff.* 143.—*Rose* 3. 2.—*Mich.* 72. 8,
cop. in Gled. 3. *Boletus f.* 5.—*Buxb.* i. 57. 1.—*Buxb. hal.* 1. row
 2. 3, p. 129.

May it not be only a variety of *H. imbricatum*. LINN.—This elegant little plant which is excellently described by Curtis, is constantly to be found in Norfolk and Suffolk, in pine groves on a gravelly soil, of a sufficient age to bear cones plentifully. On these, in a state of decay, and on no other part of the plant have I found this *Hydnum*. Mr. WOODWARD.—*Stem* solid, brown, tapering upwards, rather hairy, $1\frac{1}{2}$ to 2 inches high, thick as a crow quill. *Pileus* kidney-shaped, brown, faintly marked with concentric stripes, somewhat hairy, from $1\text{--}3\text{d}$ to $\frac{3}{4}$ of an inch over. *Prickles* greying, conical, pointed.

Under fir trees at Pendarvis, Cornwall. Mr. STACKHOUSE.—On old rotten cones, and decayed branches and leaves of firs lying half buried in the ground. In a small plantation of Scotch pines, called, Hardy's Grove, near Norwich. ROSE, *ib.*—[Pine Groves, frequent. Mr. WOODWARD.] Sept. Oct.

HYD'NUM *coralloides*. (SCOP.)—Stem whitish, very coral much branched. Branches flatted, the ends bent down. DICKS. 19.

Fl. dan. 450.—*Bull.* 390.—*Schæff.* 142.—*Mich.* 64. 2.—*Clus. app.*
alt. 18, repr. in *Ger. em.* 1582. 4; and *cop. in Park.* 1323. 24;
 and *imit. in Sterb.* 27. G, at p. 244, and possibly in *Barr.* 1256,
 1257?

Large, sitting, tufted and branched, yellow white, not leathery. Prickles slender; branches towards the ends pendant. When young very like a cauliflower. BULLIARD.—Stem branched, fleshy, white; branches roundish, thick, nearly horizontal, dividing into other smaller branches, the extremities very much sub-divided. *Pileus* none. *Prickles* awl-shaped, crooked, parallel and bundled. SCHÆFF.
 Hollow trunks of trees near Uxbridge. Aug.

HYD'NUM *erina'ceus*. (BULL.)—Almost stemless, hedge-hog heart-shaped, pendant, whitish. Prickles tiled; at the ends awl-shaped, yellowish brown. DICKS. ii. 24.

Bull. 34.—*Buxb.* i. 56. 1.

Pileus convex, whitish, or yellowish, not leathery, 1 to 3 inches over. *Prickles* very long, yellowish, tiled, hanging down to the depth of 2 or 3 inches. Generally sitting, but sometimes when growing in a deep cleft, its base is elongated so as to form a kind of stem. BULLIARD.

On old trees.

flower. HYD'NUM *floriferum*. (SCHÆFF.)—Stem black at the base, woody or leathery. Pileus turban-shaped, velvety, purplish.—

Schæff. 146, and 147. f. 2—6.—Bull. 453. 2.—Mr. Woodward also authorizes me to refer to the following figures.—Batsch. 221. 222.
—Mich. 72. 4. 7.—(Bull. 156, seems to be only a variety of this species.)

Stem swollen at the base, covered with a thick woolly down, and blackish; substance like cork, very elastic when pressed. Frequently 2 or more plants united at the stem and sometimes the pileus's are also united. Pileus at first flat, or very slightly convex, afterwards concave, covered with a fine down resembling velvet to the eye and to the touch; of a fine ash colour, soon turning to reddish purple, and at length black. Prickles short, numerous, covering the inversely conical body of the pileus quite to the stem. Mr. WOODWARD.—First published as an English plant by Mr. Dickson, fasc. 1. 19, to whom it was communicated by Mr. Woodward.—The general shape is conical, $\frac{1}{2}$ to 1 inch diameter at the bottom, and $1\frac{1}{2}$ to 3 inches over at the top. Stem red brown. Pileus when young, lopped, white, set with shining particles; when older convex but flattish, assuming a gold colour, at length concave and scaly. Prickles tiled, pale red. SCHÆFFER.

Earlham wood, Bungay, Suffolk, but rare. Mr. WOODWARD.

Common HYD'NUM *imbricatum*. Prickles pale red brown, Pileus red brown with darker scales. Stem pale red brown or brownish white.—

Hydn. stipitatum, pileo convexo imbricato. LINN.

Pileus pale flesh colour; unequal. Prickles whitish. Stem smooth, whitish, flesh colour.

Bull. 409.—Fl. dan. 176.—Schæff. 140.—Hedw. th. 37. 212, a magn. prickles, 213 seeds, 214 threads with chives from the stem.

—Pet. gaz. 92. 16.—Batsch. 43.

Prickles red yellow, Pileus convex, fleshy, pale brown, depressed in the center, scaly; scales blackish, raised, pointed. SCHÆFFER.

VAR. 1. Pileus, edge turned inwards. Stem whitish.

Schæff. 273.

VAR. 2. Prickles whitish. Pileus pale flesh colour, smooth,

Mich. 72. 2.

Pileus pale flesh colour, unequal. Prickles whitish. Stem smooth, white with a tinge of flesh colour. Fl. suec.

Woods near Maidstone, Kent. [About Bungay, not uncommon. Mr. WOODWARD.]

HYD'NUM *repan'dum*. Prickles and pileus brownish smooth yellow. Stem paler. Pileus convex, smooth, waved at the edge.—

Hydnum ripitatum, pileo convexo lævi flexuoso. LINN.

Bull. 172.—*Bolt.* 89.—*Schæff.* 318 and 141.—*Fl. dan.* 310.—*Mich.* 72. 3.—*Vaill. par.* 14. 6. 7. 8, which the drawings distinctly shew to be a *Hydnum*.

Pileus often 6 or 7 inches diameter, with a short stem, exactly resembling the figure of *Bulliard*. Mr. WOODWARD.—Firm, fleshy, brittle, tawny yellow. Stem short, whitish. Pileus convex, waved at the edge. *BULLIARD*.—Prickles bright cinnamon colour, flanting, sometimes cloven, soft and brittle. Pileus flat, smooth, cinnamon colour. Flesh white. Stem often fasciculated, pale cinnamon, cylindrical. *BOLTON*.—Pileus depressed in the center, crooked, much bent down at the rim, leathery, dirty white or buff. Stem lateral, crooked, short, horizontal or inclined. Prickles numerous, crooked, decurrent, brownish. Mr. STACKHOUSE.

Woods about Bungay, not uncommon. Mr. WOODWARD.—Near Haughwood, Herefordshire, in a hollow road. Mr. STACKH. Sept.

VAR. I. Prickles white. Pileus and stem yellow white.

Bolt. 88.

Prickles 1 to 4 lines in length. Pileus smooth, convex, sometimes lobed and gashed at the edge, fleshy, brittle, about 3 inches over. Stem 3 inches high, $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter; brittle. *BOLTON*.

In a deep narrow lane near Halifax.

Sept. Oct.

HYD'NUM *min'imum*. (*BOLT.*)—Sitting, tawny, least woody; prickles upright.—

Bolt. 171.

Semi-globular, adhering by its base to rotten wood, solitary or crowded, dry, tough, leathery or woody, grey with age, 1-10th to $\frac{1}{2}$ inch over. Flesh white. *BOLTON*.

On a piece of rotten oak.

1330. HELVEL'LA. Turban-top.

A FUNGUS smooth above and underneath.

ESS. CHAR. Smooth on both sides. Seeds on the under surface.

agaric shaped **HELVEL'LA** *agaricifor'mis*. (BOLT.)—Stem cylindrical, white. Pileus hemispherical, white.—

Bolt. 98. 1.

Stem $\frac{1}{2}$ an inch high, not thicker than a pin. Pileus, the size of a rape seed. Grows single or in clusters. BOLTON.

Woods in moist and shady parts about the roots of trees, under mosses. About Halifax.

curled **HELVEL'LA** *mitra*. Stem semi-transparent, ribbed, grooved. Pileus, lobes growing to the stem.—

Helvella pileo deflexo adnato lobato difformis. LINN.

Bull. 466 and 190.—Schæff. 154, 282, 162, 160, 161, 159, 322.

—Fl. dan. 116 and 835.—Mich. 86. 7 and 8, cop. in Gled. 2. Elvela f. 3.—Battar. 3. B, G.

When old turns quite black, which is the reason why Schæffer has figured it so many times. Mr. WOODWARD.—It is extremely variable, the stem from $\frac{1}{2}$ to 2 inches diameter, from $1\frac{1}{2}$ to 4 or 5 inches high; the colour from that of colourless horn to pearly, to brown and almost to black. The pileus not less variable in shape and size than the stem. The specimens before me may be described thus: Stem or rather a bundle of stems, about 3 inches high, nearly pellucid; connected together by places, often serpentine, ribbed and grooved; from 1 to 2 inches diameter. Pileus covering several stems united together, rather brownish, thin; brittle and tender; hanging over. Its under surface seems granulated, and is of a pale brown.

Near Bungay, but rather rare. Mr. WOODWARD.—Close to the wall by the upper Stew, at Edgbaston.

Aug.—Nov.

striated **HELVEL'LA** *caryophyllæ'a*. (DICKS.)—Almost fitting, leathery, in clusters. Pileus funnel-shaped, cut at the edge, brown, with flock-like radiated scores.—

Bull. 483. 6. 7. and 278.—Schæff. 325.—Balsch. 121.—Willd.

7. 15.

Grows solitary or in clusters; leathery. Pileus funnel-shaped, brown, marked with concentric circles and radiating lines of darker and lighter shades of colour, variously cut and jagged at the edge, nearly 1 inch over. Stem tapering downwards, solid, brown, often crooked, thicker and lopped at the root, frequently eccentric, 1-3d of an inch high, half as much in diameter. SCHÆFFER.

On the ground in plantations of firs near Bungay, Suffolk. Mr. WOODWARD in Dicks.—[Near the ground on the inside of a turf wall inclosing a plantation of firs near Ampthill, Bedfordshire, opposite Lord Ossory's park on the right of the road to Wooburn. Mr. KNAPP.]

HEL-

HELVEL'LA *cartilagin'ea*. (BOLT.)—Stem very *gristly* short. Pileus convex, flattish, scarlet, smooth.—

Bolt. 101. 1.

This plant is firm, gristly, semi-pellucid; the colour deep orange, or scarlet. Stem solid, very short. Pileus smooth, rather slippery; border thin. BOLTON.

On old walls and rocks among moss.

HELVEL'LA *farcoi'des*. Almost stemless. Pileus *purple* of various shapes, purple.—

Bolt. 101. 2.—*Schæff.* 323 and 324.—*Jacq. misc.* ii. 22.—*Bull.* 499. 5.—*Batsch.* 53.

Gelatinous; generally growing in clusters. Stem very short, solid, varying much in shape, purplish; sometimes none. Pileus purple, variable, hemispherical, or funnel-shaped, or like a flower; lobed, or plaited, or curled. SCHÆFFER.—This dubious plant has been arranged by different authors as a Lichen, as an Helvella, as a Peziza, and as a Tremella. Not having particularly examined it I submit its situation to the opinion of Mr. Dickson, not however without a disposition to believe that M. Bulliard will be found right, in considering it as a Tremella.

On rotten wood,

Apr. DICKSON.

HELVEL'LA *clava'ta*. (SCHÆFF.)—Plant yellow. *club* Pileus sloping. Stem somewhat compressed. DICKS. 1. 19.

Schæff. 149.—*Mich.* 82. 2.—*Vaill.* 13. 7. 8 and 9.

Plant soft, fleshy, solitary or in clusters. Pileus yellow, oval, compressed, flanting, uneven at the edge, near 1 inch long and $\frac{1}{2}$ an inch broad. Stem solid, yellow, swollen at the base, tapering upwards, $1\frac{1}{2}$ inch high, $1\text{--}3$ d inch diameter at the base, $1\text{--}6$ th at the top. SCHÆFFER.

Woods in Autumn.—Pendarvis, Cornwall. MR. STACKHOUSE.

HELVEL'LA *au'rea*. (BOLT.)—Stem short, yellow. *golden* Pileus umbrella-like, gold coloured.—

Bolt. 98. 2.

Stem $1\text{--}10$ th to $2\text{--}10$ ths of an inch high, tapering downwards, solid. Pileus convex, flattish, thin at the edge, golden yellow above, paler underneath, $\frac{1}{4}$ of an inch over. The plant is brittle, watery and semi-pellucid. BOLTON.

Woods in moist watery places on sticks and stems of plants.

HELVEL'LA *fbulisor'mis*. (BOLT.)—Stem short, *button* black. Pileus rather convex, yellow; dusky black underneath.—

Bolt.

CRYPTOGAMIA. Fungi.

Bolt. 176.

Stem solid, firm, a line in length. *Pileus* gently convex, but flat at the top, hard, smooth, slippery, hardly $\frac{1}{4}$ of an inch over. BOLT.

On a branch of the root of an elm within reach of the sprinklings of a stream.

verdigris

HELVEL'LA *ærugino'sa*. (OEDER.) *fl. dan.* ix. 7.
—With a stem; very small, bright green. *Pileus* of various shapes. DICKS. ii. 24.

Fl. dan. 534. 2.

Hardly a quarter of an inch in height.

On rotten wood.

footy

HELVEL'LA *fuligino'sa*. (SCHÆFF.)—Stem hollow, greyish. *Pileus* inflated, angular, plaited, blackish.—

Bull. 242.—Bolt. 95.—Schæff. 320.

Stem dusky white, or greyish, hollow, uneven, twisted and furrowed, 2 to 4 inches high, thick as a goose or raven quill. *Pileus* pale olive to dark footy colour, brittle, thin, very irregular in its shape, depressed into angles and lobes, 1 to 2 inches over. SCHÆFF. BOLT. BULL.—Stem slenderer than in the *H. mitra*, not cavernous or wrinkled, elastic, soft. Grows many together. Pendarvis, Cornwall. Mr. STACKHOUSE.

Moist woods and hedges, not common.

plain

HELVEL'LA *plana*. *Pileus* flat, livid. Stem smooth. HUDS. 633.

Woods.

Aug.—Oct.

AURICULARIA.

ESS. CHAR. Flat, membranaceous, fixed by its whole under side, but becoming detached and turning up with age. SEEDS discharged slowly from what was the upper, but is now in its state of maturity the under surface.

OBS. These plants when young lie flat and are closely attached to the substance on which they grow, the upper surface being smooth, but the under surface shaggy with hairs which serve the purpose of radical fibres. After some time the attachment formed by these fibres loosens, and the plant turns up more or less, but remains still attached in some one part, either central or lateral. The smooth upper

upper side is now become the under one; and from this the seeds are discharged. The fibrous surface, now uppermost, continues shaggy or woolly, often becomes streaked or zoned in concentric stripes, and frequently assumes a variety of colours. A process similar to this takes place in some of the stemless Agarics and Boleti, as mentioned before.

AURICULARIA ferruginea. (BULL.)—Perennial, *rusty-red* leathery, thin, zoned above, smooth underneath, but pimpled; brown rusty red.—

Bull. 378.—*Ecl.* 82. d.—*Mich.* 66. 2.

Grows very much tiled. The zones more apparent on the upper than on the under surface, about 1 or 1½ inch wide, and half as much in breadth. M. Bulliard observes that if a portion of the under side be dissected from the upper coat, it appears perforated in the microscope.

Helvella rubiginosa. DICKSON.

RAY syn. p. 22. n. 5, who describes it as 6 inches wide and 2 broad. Common on old pales, &c. near the ground. P.

AURICULARIA nicotiana. (BOLT.)—Annual, *tobacco* thin, flexible, curled and lobed at the edge; pale rust colour, with a yellow border.—

Bolt. 174.

From 1 to 2 inches over; nearly flat. *Upper surface* soft, smooth, but uneven. *Under surface* veined, wrinkled, naked. BOLTON.

On dry wood, and decayed branches of trees. Feb.

AURICULARIA papyrina. (BULL.)—Annual, *buffy* membranaceous, soft, zoned and woolly above, smooth underneath, but pitted when old.

Bull. 402.

It varies greatly in size according to its age, from 1 to 4 or 5 inches over. When young the edges are fringed, when old scalloped and lobed. The upper surface is greyish white, the under buff coloured and cellular. BULLIARD.

Mr. Robson, of Darlington, authorises me to insert this as an English species.

On the decaying trunks of trees.

AURICULARIA corticilis. (BULL.)—Leathery, *slick* thin, smooth, white above, pale brown underneath.—

Bull. 436. 1.

Spreading

Spreading flat on the dead sticks to which it adheres; brown white, soft to the touch, pitted or pustular almost like some of the foliated Lichens. The pile on the under surface by which it adheres, brownish. The edges turn up on every side, so that when its figure is circular it appears raised and fixed by its center like a stemless *Peziza*. The circular pieces from $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter; the oblong ones from $\frac{1}{2}$ an inch or more in width, to 5 or 6 inches in length.

On decaying peasticks lying on the ground, not uncommon. Aug.

woolly AURICULARIA *reflex'a*. (BULL.)—Perennial, leathery, thin, woolly and zoned above, smooth underneath. —

Bull. 274 and 483. 1. 2. 3. 4.—*Bolt.* 82. a. c. b. e.

Substance tough, cutting like hard leather, or cork. Often grows tiled. *Upper surface* like plush, varying from pale buff to deep yellow, when fully grown marked with zones of various colours, as green, grey, buff, yellow, purple, brown. *Under surface* (whilst young, the upper one) smooth, varying in colour from pale buff to deep yellow. From 1 to 2 inches wide, and about half as much in breadth. From the stems of grass and other substances with which it is often perforated, it is clear that it must have had a gelatinous consistence in its younger state.

RAY syn. p. 21. n. 2.

Helvella villosa. RELHAN.—*Boletus auriformis*. BOLTON.—*Helvella acaulis*. HUDSON.

H. pineti. Linn. is a different plant. Does not perhaps agree very well with the genus *Helvella*, but as it has no appearance of pores even when magnified it has no pretensions to be arranged as a *Boletus*. Mr. WOODWARD.

On stumps of trees and rotten wood. [On old stumps of trees in woods, frequent. Mr. WOODWARD.] P. Jan.—Dec.

gelatinous AURICULARIA *tremelloi'des*. (BULL.)—Perennial. Substance cartilaginous but gelatinous; woolly, spongy, grey brown above, smooth, pitted, violet coloured underneath. —

Bull. 290.—*Bolt.* 172.—*Mich.* 66. 4.

M. Bulliard observes that though it is mostly a portion of a circle, yet sometimes the two edges unite, forming a cornucopia. Mostly about 2 inches one way, and half as much the other. — Mr. Bolton observes that his specimens were not cellular on the outside as represented by M. Bulliard. — Variouslly scolloped, of a dull violet scent not disagreeable, somewhat resembling that of the *Morell*. RAY.—The under surface often with a bloom of a pale blue like that on

plumbs. Gelatinous underneath. Mr. KNAPP. — Begins growing with the smooth surface upwards, but the edge afterwards turns over, and then it grows tiled to a great extent, in the manner of *Boletus verficolor*. It is a very common plant, and though mentioned by Ray, is not noticed in Hudson. Mr. WOODWARD.

Helvella melenterica. DICKSON. — *Tremella corrugata*. RELH. n. 898, according to Mr. Dickson fasc. ii. 28.

On rotten wood and stumps of trees. [On the earth at the edges of sawpits, and at the bottom of gate posts. Mr. KNAPP.]

A. Jan.—Dec. RELH.—Oct. Nov. Mr. KNAPP.

P E Z I ' Z A.

Ess. CHAR. Concave. SEEDS on the upper surface only ; discharged by jerks.

A. With STEMS.

P E Z I ' Z A *niv'ea*. (DICKS.)—Stem very short. Pileus ^{now} snow white, funnel-shaped. HALL. n. 2. 239.

Hedw. stirp. ii. 22. B.—*Mick.* 86. 15.

The young plants with their snow-white soft hairs contracted into a kind of globe resembling a *Clathrus*. DICKSON.—Not bigger than half a hemp seed, and snow white. Mr. STACKHOUSE. — About 1-10th of an inch in height, and the pileus nearly as much in breadth.

On trunks of dead trees. DICKSON. — Rotten wood and sticks. RELH.—[On moss on the trunks of apple trees; Powick, Worcester. Mr. STACKHOUSE.] Aug.—Sept.

P E Z I ' Z A *puncta'ta*. Turban-shaped, lopped, the dotted disc of the pileus dotted. LINN.

Bull. 252.—*Bolt.* 127. 2.—*Fl. dan.* 288.

Seeds contained in pores, from whence they are thrown with an elastic force. GLED. cited in Linn. succ. n. 1275.—The black dots consisting of seeds immersed in the substance of the plant. LINN.—Stem black, $\frac{1}{4}$ to $\frac{1}{2}$ inch high, tapering downwards. Pileus an expansion of the upper part of the stem, concave, white, with black dots, $\frac{1}{4}$ to $\frac{3}{4}$ inch diameter. Substance dry, tough and elastic. BULL. BOLT. — Mr. Woodward thinks this may more properly rank as a *Sphæria*; and observes that it is very common about Bungay.

On horse and cow dung, and dry dung-hills.

May—Oct. HUDS.—Winter and Spring. BOLT.

CRYPTOGAMIA. Fungi.

cup PEZIZ A *acetabulum*. Stem short. Pileus glass-shaped; angular on the outside; with branching veins.—
Bull. 485. 4.—*Vaill.* 13. 1.—*Mich.* 86. 1.—(*Schæff.* 150, and 155, are *P. cochleata*;—156 is a different species.)

The largest of the Genus; thin, brittle, smooth, transparent like wax. Stem woody, brown, short, branching up the base of the pileus, solid, nearly half inch long, and $\frac{3}{4}$ diameter. Pileus 2 or $2\frac{1}{2}$ inches over, greatly cupped so as to resemble a goblet or bowl, $\frac{3}{4}$ to $1\frac{1}{2}$ inch deep, waved at the edge, red brown within, pale brown without. Sometimes without the angular branchings from the root. BULLIARD.—Nearly allied to *P. cochleata*, the external veins and the regular form constituting the principal differences. It grows near Bungay, but is not so common as the *P. cochleata*. Mr. WOODW.

On rotten wood in hedges and woods, rare. Sept.—May.

stalked PEZIZ A *stipitata*. (HUDS.)—Stem cylindrical. Pileus slightly concave, brown, hairy on the outside.—
Bolt. 96.—*Schæff.* 167.—*Bull.* 196.

Mr. Bolton's figure well as to its habit, but the hairiness on the outside not expressed. Mr. WOODWARD.—Stem solid, brown, 2 to 3 inches high; thick as a crow or a goose quill, rather tapering upwards. Pileus thin, brittle, semi-transparent, brown, gently concave, woolly on the outside, 1 to 2 inches over.

Woods near Guildford. HUDS.—Woods below Highfield 3 miles from Halifax. Sept.

tuberous PEZIZ A *tuberosa*. (DICKS.)—Stem growing at the base to a blackish fungous tuberous substance. Pileus nearly bell-shaped, brown without, paler within.—

Bull. 485. 3.—*Hedw. stirp.* ii. 10. B.

Stem unequal, buried up to the head within the soil. DICKS.—One to 2 inches high, thick as a crow quill, pale buffy brown. Pileus funnel-shaped, buffy brown within, darker brown on the outside, 1-3d of an inch high, and $\frac{1}{4}$ or more in diameter. Root fixed to a black brown mass, seemingly a dead root of the *Anemone nemerosa*. HEDWIG.—Stem $1\frac{1}{2}$ inch high, rather thinner than a crow quill. Pileus wide funnel-shaped, $\frac{3}{4}$ of an inch over. BULLIARD.

In grassy spots in woods, near London.

rooted PEZIZ A *radicata*. (DICKS.)—Stem slender, tapering downwards; Pileus brown, hemispherical, smooth. Root simple, with minute fibres.—

Bull. 485. 2.—(*Reichard, in Besch der Berlin. gesellsch.* 3. p. 214. t. 4. f. 4. 5. 6, on the authority of Mr. Dickson.)

Thin,

'Thin, brittle, smooth. Stem slender, $\frac{1}{2}$ inch long, furnished with a fibrous root. Pileus yellow brown, $\frac{1}{2}$ to 1 inch over, concave, shallow. BULLIARD.

In woods, taking deep root in the ground. Sept.

P E Z I ' Z A *minu'tula*. Stem brown, very short. Pileus *pin* brown, nearly flat.—

Stem not quite 1-20th of an inch in height, and slender in proportion. Pileus about as much in diameter, nearly flat, the edge a little turned up, not hairy.

On a decaying stick, Edgbaston. 27th Nov. 1790.

P E Z I ' Z A *cupula'ris*. Stem very short and thick. *scolloped* Pileus more than semi-globular, bell-shaped, pale buff, *scolloped* at the edge.—

Bull. 396. 3.—Vaill. 11. 1. 2. 3.—Mich. 86. 2.

The distinguishing marks of this species, are the scolloped edge, and the greyish colour of the outer surface. Mr. WOODWARD.—Stem $\frac{1}{4}$ of an inch high, and half as much in diameter. Sometimes there is no stem. Pileus pale buff, thin, transparent, scolloped at the edge, shaped like the cup of an acorn; about 1 inch diameter.

Shrubby, in moist turf by the side of the gravel walk, near the house at Edgbaston, Sept.

P E Z I ' Z A *undula'ta*. (BOLT.)—Stem hollow, gradually *waved* expanding into a funnel-shaped pileus, red yellow and veined on the outside, rich brown within.—

Bull. 461.—Schæff. 157. 2.—Bolt. 105. 2.—Mich. 82. 2.—Vaill.

13. 7. 8. 9.

Plant about $1\frac{1}{2}$ inch high. Pileus $\frac{3}{4}$ of an inch over, marked with a few almost imperceptible veins on the outside, smooth within, waved and curled at the edge. BOLTON.—Schæffer has figured this plant extremely well, and calls it an *Helvella*; but out of the numerous figures in the 157th plate, Mr. Bolton refers only to fig. 2, though Schæffer makes no distinction. Batfch refers to Schæffer's plate, without restriction, as his *Agaricus aurora*, which he himself has figured, though indifferently, pl. 9. f. 36. Bulliard calls it *Helvella tubæformis*, and makes also an unlimited reference to Schæffer 157. The plants represented by M. Bulliard are much larger than those of Mr. Bolton, and the gill-like veins much more distinctly marked. The plant of Micheli, who also refers to Vaillant, as above, is described as having a greenish pilcus, so that it is probably a variety. On the whole I believe this species is neither an

Agaric,

Agaric, an *Helvella*, nor a *Peziza*, but more properly belongs to the Genus *Merulius*.

In woods, but not common.

Oct.

scarlet PEZIZ'A *coccin'ea*. Stem buff. Pileus glass-shaped, crimson within, buff on the outside.—

Bull. 467.—*Bolt.* 104.—*Walcot*, *P. cyathoides*.—*Jacq. fl.* 163.
—*Battar.* 3. *N. O.*—*Penn. Wales.*—*Mich.* 86. 5.

Root short, white within. Stem solid, from 1-10th to $\frac{1}{2}$ inch high; thick as a crow or a goose quill. Pileus thin, cupped, rather elastic, but brittle, deep carmine colour within, buffy underneath, with mealy granulations.

Peziza epidendra. BULL.

On rotten sticks in woods and wet hedge bottoms. [With a North or East exposure. Mr. WOODWARD.] Spring—Autumn.

VAR. 1. Irregularly cupped, border waved, scarlet within, buffy or whitish brown on the outsides, stem none, but a hard, black knotty root.

Bull. 474. — *Bolt.* 100. — *Schæff.* 148. — *Fl. dan.* 657. 2.
—*Batsch.* 158.

Shaped like a butter-boat. Mr. STACKHOUSE.—This plant is most excellently figured by Bolton. The colour is usually a bright deep orange above, and a dirty orange or yellow beneath, in which it differs from *Bolt.* 104, which is always a rich scarlet within, and white and silvery without. It differs also in being irregular in shape, never cup-shaped, except when very young, whilst the other is always exactly cup-shaped, and stands on a short pedicle. Whether Mr. Hudson's *cyathoides* be the elegant and very uncommon plant figured by Bolton 104, seems doubtful, neither Dillenius's fig. nor short description in the Synopsis at all elucidate the matter, and it certainly can never be called yellow. The first of these is rather scarce, but the other is very common on decayed sticks under hedges in the spring. Mr. Bolton is certainly mistaken in asserting that his 104 never emits any powder from its internal surface, for I have repeatedly by a slight irritation, caused the mature plants to throw out clouds of smok. It ought, therefore, according to his principles, to have been placed with the *Helvellæ*. Mr. WOODWARD.—Thinner, more spreading and more irregularly cupped than the preceding; sometimes quite fitting, with a small, nearly central root; sometimes the root a pretty large black knob, and sometimes it forms a short stem.

Hevella coccinea. BOLT.—*Peziza coccinea.* BULL.

On the ground, amongst gravel and road sides; when it resembles the most sessile of the figures. I once found it on the stump of a tree, with more of a stem and less spread out, forming the connection between the two varieties.

Malvern Hill, and Coplar Hill, amongst wet moss. Mr. STACKH.
Oct.

P E Z I ' Z A *tubæ*. Stem thread-shaped; border flat. *trumpet*
Plant yellow.—

Bolt. 106. 1.

See *Merulius tubæformis*.

P E Z I ' Z A *inflex'a*. (BOLT.)—Stem crooked. Pileus *bended*
funnel-shaped, fringed at the edge, pale buff.—

Bolt. 106. 2.—*Mich.* 86. 13.

Stem white, pellucid, always bent. Pileus pale buff within, funnel-shaped, fringed at the edge. Whole plant about $\frac{1}{2}$ an inch high.
BOLTON.

On rotten vegetables in damp places in woods and about rivulets.

P E Z I ' Z A *ochroleu'ca*. (BOLT.)—Stem black at the *yellowish*
bottom. Pileus funnel-shaped, dirty yellow within.—

Bolt. 105. 1.

Plant hard and leathery. Stem solid, black below, dusky yellow above, near $\frac{1}{2}$ inch high, thick as a large pin. Pileus funnel-shaped, ochrey yellow within, smooth, even at the edge, about $\frac{1}{4}$ of an inch over. BOLTON.

Near Halifax in several places.

P E Z I ' Z A *cyathoi'des*. Stem short. Pileus yellow, *smooth*
glass-shaped, border blunt, upright.—

R. syn. 24. 4, at p. 478.

Stem very short. Pileus flattish, but slightly concave, yellow, border smooth. RAY *syn.* p. 18. n. 8.

On rotten wood.

Aug.—April.

P E Z I ' Z A *calyc'ulus*. (BARSCH.)—Stem rather long, *little-cup*
strap-shaped, firm, distinctly inserted. Pileus concave, hemispherical, expanding.—

Bull. 416. 3.—*Hedw. stirp.* ii. 9. C.—*Batsch.* 57.—*Mitch.* 86. 14.

The whole yellow. Stem 2 lines long. Pileus 2 lines wide.
RELHAN.—Its colour varies in different shades of yellow, and its pileus is either nearly flat, or cupped in various degrees of hollow-
ness.

ness. The figure of Bulliard is excellent, and he well observes that it grows upon the annual shoots of branches.

On rotten wood in Madingley plantations. August.—On half rotten sticks, Edgbaston, Oct.—On rotten wood. Nov. Dec. Mr. KNAPP.

hornbeam PEZIZZA *fructig'ena*. (BULL.)—Stems slender, tapering, Pileus slightly concave; pale yellow.—

Bull. 228.—Batsch. 150.

Opake, leathery, fleshy, funnel-shaped. Stem $\frac{1}{4}$ to $\frac{1}{2}$ inch high, tapering downwards, often bent in different directions. Pileus 1-10th to 1-4th inch diameter, funnel-shaped, but the hollow above not deep on account of the thickness of the flesh.

M. Bulliard says he only finds it on the coriaceous fruits, as acorns, chestnuts, &c. and Batsch says his grew on the seeds of a hornbeam; but though the fruit of such trees may be its more common nidus, I found it growing in large clusters on a rotten stick in the month of Oct. 1791. Mr. Relhan informed me, that he had found the plant of Batsch in Madingley wood, but omitted to say on what it grew.

B. STEM-LESS.

pinky PEZIZZA *albida*. Stemless. Pileus pinky white, saucer-shaped, quite smooth.—

From $\frac{1}{4}$ to $\frac{3}{4}$ of an inch diameter; whilst small shaped like a goblet, when full grown flat at the bottom but the edge always turned up like a saucer; perfectly smooth, thin, semi-transparent, watery white, with a tinge of pink within.

On the cellar floor at Greenbank near Birmingham, in the joints of the bricks. Sept.

eyelet PEZIZZA *marginata*. (RELHAN.)—Stemless. Pileus concave, brownish; edge flat, somewhat scolloped, snow white.—

Fl. dan. 779. 1.

Very beautiful, when viewed by the naked eye very much resembles the saucers of *Lichen subfuscus*, but examined with a microscope it resembles the eyelet holes of stays. RELH.—From this description I had supposed it might be the work of an insect, similar, except in colour, to one which is frequently found upon oak leaves, but on stating this doubt to Mr. Relhan, he very obligingly sent me specimens which at once convinced me it was a plant. It is not larger than the head of a pin.

On decayed wood at Whitwell, near Coton, Cambridgeshire.

Sept. Oct.

P E Z I ' Z A *Auricula*. Stemless: Pileus brown, concave, wrinkled, shaped like an ear.— *Jew's ear*

Bull. 427. 2.—Clus. ii. 276, repr. in Ger. em. 1581, (misprinted 1481.) 1, and cop. in J. B. iii. 841. 1, and Sterb. 27. H. H. at p. 244.—Blackw. 334.—Mich. 66. 1, the right hand fig. cop. in Gled. 2, the upper middle fig.—Battar. 3. F.—Gars. 115. B.—(Vaill. 11. 8, is *P. cochleata*.)

This is either a *Peziza* or *Helvella*, and not belonging to *Tremella*, which should be perfectly gelatinous. Mr. WOODWARD.—Wide spreading, 1 to 2 inches over, soft but cartilaginous, sitting, thin, fibrous and downy underneath, cupped, plaited, reddish brown. BULLIARD.

Tremella auricula. HUDS.

On rotten wood. [On old elders in gardens at Yarmouth. Mr. WOODWARD.] A. Sept.—May.

VAR. 1. Dark olive colour.

Bolt. 107.

One to 4 inches over. Smooth above; granulated underneath. BOLTON.

On a willow tree.

Feb.

P E Z I ' Z A *cochleata*. Stemless; Pileus thin, brittle, wretched brown, large, concave, irregular, the sides tearing and curling in.—

Peziza turbinata, cochleata. LINN.

Bull. 154.—Bolt. 99.—Jacq. misc. ii. 17. 1.—Batsch. 157.—Schaff. 274. 155. 150.

Sitting, hemispherical, or ear-shaped, or spoon-shaped, dark blackish brown above, white underneath, branching veins shooting from the center. JACQUIN.—From 1 to 2 inches over, or more, semi-transparent, the form extremely variable, the edge cooped in, cracking, tearing and then curling inwards. Varies in colour from a dirty straw to brown, and sometimes purplish. Mr. Bolton considers it as an *Helvella*, because it emits its seeds in form of smoke or powder when irritated, but the *Peziza* possesses the same property. The real difference between them is, that in the *Helvella* the seeds are ejected from the under, in the *Peziza* from the upper surface, as is well pointed out by M. BULLIARD.—*P. cerea* 44. Bull. and *Helvella vesiculosa*. Bolt. 175. seem only varieties of this. Mr. WOODWARD.—I have found it with a stem about 1-10th of an inch in length; these plants were from $\frac{1}{2}$ to 2 inches over.

CRYPTOGAMIA. Fungi.

Woods, on the ground, or on decayed branches of trees. [On a dunghill near Bath. Mr. STACKHOUSE.—Rookery, Edgbaston, on the ground.]
Sept. Oct.—July.

brown PEZI'ZA *fus'ca*. Stemless: Pileus concave, brown, pale at the edge. BOLT. 109.

Bolt. 109. 2.

Adhering by its whole outer surface, except the edge which is turned up; thin and of a pale olive colour; from $\frac{1}{4}$ to near $\frac{1}{2}$ inch over. BOLTON.

In several places about Halifax, on old dry dunghills.

orange PEZI'ZA *ful'va*. (Huds.)—Stemless: Pileus flat, border turned in, smooth, yellow or brown.—

Vaill. 13. 14.—Bull. 438. 3. and 376. 1.—R. syn. 24. 2, at p. 478, may be the plant, but it is both figured and described as having no cavity at all.

A line broad. RELH. n. 968.

On horse and cow dung, and on gravelly soil. [On the bark of a tree, Mr. KNAPP.—About Bungay, common. Mr. WOODWARD.]

liver-colour'd PEZI'ZA *hepat'ica*. Stemless: Pileus dark purple, with a hollow dot in the center.—

Batsch. 138.

Substance horny, colour very dark purple or tawny-liver-colour: Pileus circular, or kidney-shaped, with a hollow dot in the center, over where the root is fixed. Not more than 1-20th of an inch over. BATSCH.—Mr. Relhan lately informed me that he had found this species at Wood Ditton.

In woods on the ground amongst moss. Autumn. BATSCH.

vermillion PEZI'ZA *punic'ea*. (BATSCH.)—Stemless: Pileus flat-tish, yellow red within, paler on the outside, edge thick, but little raised.—

Batsch. 220.

Substance hard and horny, thin, pale red, neither woolly nor hairy, wrinkled on the upper surface; brittle when dry.

Found by Mr. Relhan amongst the leaves of the Bryum murale, on old walls at Ditton, Cambridgeshire.—On half rotten sticks at Edgbaston.

7th Oct. 1791.

hairy PEZI'ZA *scutella'ta*. Stemless: Pileus flat, orange red, border raised, hairy.—

Bolt. 103.—*Bull.* 10, and 438. 2.—*Batsch.* 54.—*Hedw. stirp.* ii. 3.
A. 1 to 7.—*Schæff.* 281.—*Ray syn.* 24. 3, at p. 479.—*Vaill.* 13.
 13.—*Mich.* 86. 19 and 17.

Orange red within, buff on the outside, hairy at the edge; about about 1-8th or 1-10th of an inch over, when young like a goblet, flatter with age, but the edge still turned up.

On cow dung, common; also on rotten wood. Oct.

VAR. 1. Smooth at the edge.

Bull. 438. 3.

Stemless; orange coloured, nearly flat, not fringed at the edge, $\frac{3}{4}$ of an inch diameter.

On cow dung, and amongst moss on a clayey soil, Edgbaston, common. Aug.—Sept.

VAR. 2. Pileus woolly and white on the outside.

Bull. 410. 3.

M. Bulliard observes that the Pileus closes in dry and opens in wet weather.

Specimen, and a beautiful drawing of it sent to me by Mr. Knapp, who found it on dead sticks in a wood in Buckinghamshire.

PEZI'ZA *vesiculo'sa*. (BULL.)—Stemless; large; bladder bladder-shaped; thin, brittle, dull yellow.—

Bull. 44, and 457. 1.—*Bolt.* 175.—*Schæff.* 280.

Nearly globular when young; the opening at the top enlarging as it grows older; but the edge is always turned in. The root is a dark coloured hard knotty substance. The plant from 2 to 3 inches diameter; or more, and nearly as much in height; the substance smooth, moist, tender, brittle, dull ochrey yellow within, paler without, and the surface granulated. BOLTON.—Approaches nearly to the *Peziza cochleata*, but does not tear like that, and if accidentally torn does not curl in spirally, neither does it jerk out its seeds like that. BULLIARD.:

On the ground on road sides, or on dunghills.

Spring and Autumn.

PEZI'ZA *lanugino'sa*. Stemless; egg-shaped; woolly woolly without, smooth and buff within.—

Fl. dan. 779. 2.

This grows in large clusters, each plant when young and about the size of a small pea, egg-shaped, and entirely covered with pale brown wool on the outside; the aperture at the top at first small, smooth, conical. Advancing in growth it becomes more flat, and open, so as to form a deep saucer-like cup. Substance very tough, and cuts

like hard leather. Varies in size from that of a pin's head to $\frac{1}{4}$ and even half an inch diameter.

Peziza minuta. DICKSON.

On half rotten sticks, Plantations, Edgbaston.

Sept. Oct.

hairy PEZI'ZA *his'pida*. (HUNS.)—Stemless: Pileus hemispherical, brown and rough with hairs without, smooth and sea green within.—

Bull. 204.—*Schæff.* 151.—*Fl. dan.* 656. 1.—*Mich.* 86. 4, *cop. in Gled.* 2, *Elvela*, f. 8.

Stemless, solitary or in clusters, leathery. *Pileus* concave, hemispherical, blue white within, smooth; brownish and hairy on the outside, uneven and hairy at the edge; about $\frac{1}{2}$ an inch over. SCHÆFFER.—The internal surface nearly white, and perfectly smooth; the external thickly set with short, rigid, brownish hairs. Frequent near Bungay. Mr. WOODWARD.—Diameter sometimes as much as 2 inches; it is thin, brittle, semi-transparent, nearly flat, but the edge turned up, and cooping in.

Moistish woods, hedges, and moist rotten wood, and gravel pits.

Sept. Oct.

green PEZI'ZA *vir'idis*. (BOLT.)—Stemless: Pileus concave, green, black at the edge.—

Bolt. 109. 1.—*Bull.* 376. 4.

The size of a large pin's head; dark green, with a thick black border. BOLTON.

On decayed oak leaves, and on rotten wood.

Dec.

blue PEZI'ZA *cæru'lea*. (BOLT.)—Stemless: Pileus blue, fringed at the edge.—

Bolt. 108. 2.

Adheres to wet rotten wood by a small central root; bright blue above, paler at the edge, and fringed with soft pale hairs; black and smooth on the outside; about $\frac{1}{4}$ of an inch over. BOLTON.

Under firs at Burk's Hall near Halifax.

Oct.

variable PEZI'ZA *polymor'pha*. (LIGHTF.)—Stemless: Pileus turban-shaped, hollow, flat or convex with age, wrinkled on the outside; black above.—

Hedw. stirp. ii. 6. E.—*Batsch.* 50.—*Bull.* 116. 460. 1.—*Fl. dan.* 464.—*Schæff.* 158.—*Hall. enum.* 1. 8, at p. 21, *repr. in hist.* 48, at iii. p. 116. (*12th Ann. veg. cryp.* 2. b. 2. Mr. Woodward.)

Some

Sometimes solitary, more frequently in clusters. When mature, it emits a very subtle black powder in great quantities from its upper surface, though Hoffman says the seeds are emitted from the under surface, which is not analogous to any other similar plant. It afterwards becomes more and more dilated and at length plane or even convex with the edge rolled back, and in its latest stage variously wrinkled and deformed. On old trees which have been felled and are lying on the ground; frequent. Mr. WOODWARD. —Very well figured and described by the authors quoted above. Schæff. 153, also seems to be the plant in its unexpanded state. The substance of the plant is very like the Caoutchouc or elastic rubber, but it is rather adhesive. The top is black and shining like pitch. The figure an inverted cone, $\frac{1}{2}$ an inch high, $\frac{1}{4}$ of an inch diameter at the bottom, $\frac{1}{2}$ or 1 inch at the top, fleshy, solid, brown on the outside.

Tremella turbinata. HUDS. 563.

On the trunks and branches of fallen oaks. [On the decayed branches of an oak; in Cornwall. Mr. STACKHOUSE.—On the stump of an oak, Hollowayhead-lane, near Birmingham.]

Sept.—April.

PEZI'ZA a'tra. Stemless; concave, black. HUDS. 637. *black*
On cow dung. HUDS.—On rotten wood. BOLT. Aug.—May.

N I D U L A ' R I A.

Ess. CHAR. Fungus leathery, bell-shaped, sitting. Capsules large, flat, fixed by pedicles at the bottom of the bell.

OBS. Whilst the plant is young it contains a clear gelatinous fluid, and its orifice is closed with a thin membrane which tearing as the growth advances, the fluid evaporates and the seeds, or rather capsules, then become visible.

NIDULA'RIA campanula'ta. Bell-shaped; border *bell-shaped*
expanding; smooth, shining and grey within. Capsules
smooth.—

Peziza (lentifera) campanulata lentifera. LINN.

Bull. 488.—Bolt. 102. 1.—Schæff. 180.—Vaill. 11. 6 and 7.

—Mich. 102, *cyathoides* 1, cop. in Gled. 4 *Pez. f.* 3 and 5.—Pluk.

184. 9, cop. in Pet. 107. 9.—Battar. 3, I. K. L. M.—Fl. dan.

469. 1.—(Hoffm. *veg. cryp.* ii. 8. 2. Mr. Woodward.)

Stemless; inversely conical, from $\frac{1}{2}$ to $\frac{1}{4}$ of an inch high, and nearly as much in diameter at the top. Brown on the outside; dark grey and smooth within; the border flanging out. Substance leathery. Capsules fixed by threads to the inside of the bell.—Consists of a grey membranaceous bell shaped cup, rather downy on the outside; its edge entire and reflected. Within it are contained several compressed circular bodies, filled with a gelatinous matter and connected with the cup each by a fine thread inserted into its flat side. When these threads are fixed near the edge of the cup, the cases supported by them are found suspended on its outside. Mr. GOUGH.

Woods, garden walks and fields. [Frequent about Bungay. Mr. WOODWARD.—Coplar Hill, Herefordshire, plentiful, Mr. STACKH.]

conical NIDULA'RIA *striata*. Conical, woolly on the outside, scored within. Capsules woolly underneath.—

Bull. 40. A.—Bolt. 102. 2.—Schaff. 178.—Fl. dan. 780. 1.

—Mich. 102, *cyathoides*, 2, *cop. in Gled.* 4. *Peziza f.* 1 and 2.—

Vaill. 11. 4 and 5.—(Hoffm. *veg. cryp.* ii. 8. 3. Mr. Woodward.)

Very woolly on the outside, beautifully striated within.

P. lentifera ? Linn.

Woods, fields, and rotten wood. [Earsham Wood near Bungay, Suffolk. Mr. WOODWARD.]

Sept.—May.

smooth NIDULA'RIA *laevis*. Conical but distended, dirty yellow, smooth. Capsules smooth.—

Bull. 40. B. C. C. and 488. 2.—Schaff. 179, 181.—Mich. 102,

Cyathoides, 3, *cop. in Gled.* 4 *Peziza f.* 4.—Fl. dan. 105.—Ray

1, 2, b; and c, one of the seed-like substances. (Hoffm. *veg. cryp.* ii. 8. 1. Mr. Woodward.)

Perfectly smooth both within and without; shaped like a crucible. All these species are at first closed by a cover, formed of the outer coat of the plant, which tears and disappears as the growth advances, shewing the young progeny which fall out, and fix themselves by their radicle, forming new plants. All the three species are common here. Mr. WOODWARD.

On rotten wood.

Sept.—May.

1328. P H A L ' L U S. Morell.

FUNGUS smooth underneath, with a fleshy net-work on its upper surface. LINN.

Ess. CHAR. Stem supporting a cellular Pileus. Seeds in the cells.

P H A L ' L U S *esculentus*. Pileus egg-shaped; full of *esculent* cells. Stem naked, wrinkled.—

Bull. 218. B. D.—Schæff. 199. 298. 299. 300.—Bolt. 91.—Fl. dan. 53.—Sterb. 10.—Mich. 85. 1 and 2; 84. 1, 2, and 3; cop. in Gled. 2. Phallus f. 1, 2, 4, 5, 6, 7.—Garf. 173.—Clus. 264. 1, repr. in Lob. ic. ii. 274; Dod. 481. 1, Ger. em. 1583. 1, and cop. in J. B. iii. 836. 2, and the principal one cop. in Park. 1317. 1.—Tourn. 329. A.—Battar. 2. F.

Has an agreeable smell. Stem hollow, naked, short, white, 1 to 2 inches high, $\frac{1}{2}$ to 1 inch in diameter. Pileus buffy or brownish, entirely united to the stem, from the size of a pigeon's to that of a swan's egg; cells very large, angular like a honeycomb.—Colour pale yellow, or buff, grows to a large size. Mr. WOODWARD.

Woods and hedges in loamy soil.

May.

♀. Small, black.

Bull. 218. E. F.

On sandy heaths, Norfolk. Mr. WOODWARD.

P H A L ' L U S *impudicus*. Pileus cellular above, *sinking* smooth underneath, not united to the stem. Stem perforating the pileus and open at the end.—

Bull. 182.—Curt. iii. 33.—Schæff. 198. 197. 196.—Bolt. 92.—Mich. 83, cop. in Gled. 2. Phallus f. 3.—Fl. dan. 175.—Ray cat. at p. 122. ed. ii.—Battar. 2. A, B, C, D.—Sterb. 30. B, C, at p. 276.—Clus. ii. 295, repr. in Dod. 433, Lob. ic. ii. 275, and Ger. em. 1583. 2; and cop. in Park. 1322. 13, J. B. iii. 845. 1, Sterb. 30. B, F, G, at p. 276, and Barr. 1258.—J. B. iii. 843. 3, cop. in Sterb. 30. A, D.—Pet. fl. 17. 13. 14.—Clus. ii. 286. 2, cop. in J. B. iii. 845. 2, Sterb. 30. I, H, at p. 276, and Barr. 1264, exhibits no appearance of a pileus open at the end, but is probably the same.

Though this plant is so intolerably foetid that it is much oftener smelt than seen, yet in its egg-state it has no offensive smell. The odour resides in the green matter which fills the cells of the pileus and is very soon devoured by flies, particularly by the large blue flesh

flesh fly. In its egg state it is about the size of a small pullet's egg, and remains many days before it bursts through its wrapper; but this being done, the stem pushes up with amazing rapidity, attaining the height of 4 or 5 inches in a few hours. This offensive green matter contains the seeds, which may be seen by the assistance of a good microscope. Such as have courage to smell this matter closely, will find it much less disagreeable than at a distance; for it then seems to have a slight pungency like that of volatile salts. Its odour very soon pervades a whole house. The wrapper is lined with a clear jelly like the white of an egg, but stiffer; within this is found the green matter, and within that the young plant. When it shoots up, the wrapper and the clear jelly remain at the root; the stem is hollow, within porous and spongy like pith.

[Very common in wet summers in hedge banks and thickets.— In sandy situations frequent near Bungay. Mr. WOODWARD.]

July—Sept,

bell-headed

PHAL'LUS *campanula'tus*. (WOODWARD.)—Pileus bell-shaped, powdery. Stem ragged, woody.—

Phil. Trans. lxxiv. 16. at p. 423.

Wrapper egg-shaped, with two coats, whitish, full of mucilage, buried under ground to the depth of 7 or 8 inches. Stem cylindrical, naked, somewhat woody, hollow, ragged from the breaking of the bark, about a foot high. Pileus covered above with a thick layer of powder over which lies as a veil, a portion of the burst wrapper. Veil torn, loose. Powder brown. DICKS. p. 24.—Roots few, thin, whitish. Wrapper egg-shaped, double, with mucilage between the coats. Stem issuing from the inner coat of the wrapper, rather woody, hollow, brownish, its surface ragged. Pileus bell-shaped, smooth, covered on its upper surface with a thick layer of powdery matter, and bearing on its apex a cap formed by a part of the lacerated wrapper. Powder spherical, semi-pellucid, yellow brown. The Egg is about the size of a small hen's egg, and lies buried in sandy banks at the depth of 6 or 8 inches. The stem is from 7 to 12 inches long, though not more than 2 or 3 inches appear above the surface. The pileus is an inch or more from the edge to the apex, and nearly as much in diameter at its base. *Phil. Trans.* v. 74, p. 423.—This very singular plant was first discovered by Mr. Humphreys, and afterwards its progress in its various states was carefully watched by Mr. Stone and Mr. Woodward, the latter of whom sent an accurate description of it with a drawing to the Royal Society. In the *Phil. Trans.* it is referred to the Genus *Lycoperdon*, and Mr. Dickson has introduced it in his *Fasc. Plant. Cryptog.* p. 24, under the name of *Lycop. Phalloides*; but the distribution of the Fungi adopted in this work, compels me to rank it as a *Phallus*.

Sand

Sand banks near Norwich, Norfolk, and Bungay, Suffolk. Mr. HUMPHREYS, and Mr. WOODWARD in *Dicks.*—[Earsham and Kirby, Norfolk. Mr. WOODWARD.] Aug.

PHAL'LUS *caninus*. (SCHÆFF.)—Pileus wrinkled, *dog's* red, covered with a greenish matter, conical, closed at the end. Stem yellow, tapering at the bottom.—

Curt. iv. 39.—*Schæff. 330, too highly coloured.*—*Battar. 40. F.*

Egg the size of a nutmeg. Stem hollow, as thick as a swan's quill, near 3 inches high, pale orange, semi-transparent. Pileus conical, not larger than the stem, $\frac{1}{2}$ inch high, closed at the apex; covered with a thin coat of green scentless slime, which being removed it appears red and wrinkled. Its growth is rapid like that of the Ph. impudicus. CURTIS.

Schæffer's figure not an exact resemblance of it as found in England. Mr. WOODWARD.

This is a rare plant. First found in woods and shady places near Shrewsbury. EHRET. in *fl. ang.* July—Sept.

1332, CLAVA'RIA. Club-top.

FUNGUS perpendicular; smooth; oblong; of one uniform surface.

Ess. CHAR. Oblong, upright, club-shaped. SEEDS emitted from every part of its surface.

* STEM with a head.

CLAVA'RIA *gyrans*. (BATSCH.)—Stem hair-like. *twisted stalk'd* Head club-like, terminating, longish, tapering at each end. RELHAN, n. 1102.

Bolt. 112. 1.—*Batsch. 164.*—*Willd. 7. 18.*

Stem 1-3d to 2-3ds of an inch long, very slender, pellucid, crooked at the bottom, twisting and untwisting as the air is moist or dry. Head oblong, near $\frac{1}{4}$ of an inch high, whitish. BATSCH.

On rotten straw and leaves, in woods and moist places. Sept. Oct.

CLAVA'RIA *phacorhi'za*. (DICKS.)—Very simple, *slender* very thin, brown. Club-awl-shaped, whitish. Root lentil-shaped. REICH. in *chrift. der Berl. gesellsch. i. 315.* DICKS. ii. 25.

Bolt.

Bolt. 111. 1.—*Mich.* 87. 7.

Stem $\frac{1}{2}$ inch long, smooth, slender, pellucid. *Head* 1 inch long, slender, spindle-shaped. *BOLTON.*

Garden walks about Walthamstow.

Oct.

headed *CLAVARIA capita'ta.* *Stem* yellow, cylindrical. *Pileus* egg-shaped, chestnut coloured, dotted.—

Bolt. 130.—(*Fl. dan.* 540, and *Bull.* 463. 3, seem to be varieties of this.)

Root black, spongy, surrounded by a thick wrapper which is continued with the stem. This is again inclosed in another, of a dry texture and brown green colour. *Stem* solid, smooth, furrowed, twisting, soft, pliable, splitting, 2 to 3 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. *Pileus* long egg-shaped, $\frac{3}{4}$ of an inch high, near $\frac{1}{2}$ inch diameter. *BOLTON.*

Ramfden Wood, about Highfield near Halifax.

spatula *CLAVARIA Spat'hula.* (*Dicks.*)—*Head* compressed, dilated, *Stem* wrinkled.—

Bolt. 97.—*Fl. dan.* 658.—*Schmid.* 50.

Stem white. *Head* yellow, egg-shaped, flattened. On being touched throwing up the seeds in form of a smoke, which rise with an elastic force and glitter in the sunshine like particles of silver. *BOLT.* 97.—On touching them when in full perfection a smoke arises from the edges thrown out with considerable force, and continues to rise some time, a circumstance common to all the *Pezizas* and *Helvellas*, and shewing this plant to have more affinity with them, particularly to the first than to the *Clavaria's*. *Bolton's* figure represents the head more inflated than I have ever seen it, *MR. WOODWARD.*

Woods near Norwich. Sept. *MR. CROWE.*—[In a pine grove at Kirby, near Beccles, constantly appearing every year. Aug. *MR. WOODWARD.*]

orange *CLAVARIA militu'ris.* Club-shaped, very entire, *Head* scaly. *LINN.*—*Head* granulated—

VAR. 1. *Head* orange or brown red.

Schmidel 5, 2 and 3.—*Bolt.* 128.—*Vaill.* 7. 4.—*Fl. dan.* 657. 1.

VAR. 2. *Head* yellow.

Bull. 496. 1.—*Buxb.* iv. 66. 2.

Stem slender, tapering upwards, about an inch high, and then gradually thickening to form the *Head*, which is nearly cylindrical, but thickest in the middle, blunt at the end, granulated on its sur-

face, 1 or $1\frac{1}{2}$ inch high, 2-10ths to 3-10ths of an inch diameter in the thickest part.

Moist woods and bogs. [Thorpe near Norwich. Dr. J. E. SMITH.]
Sept.—Oct.

** STEM undivided; without a head.

CLAVA'RIA *hercula'nea*. Undivided, solid.— *solid*

VAR. 1. Club-shaped, depressed at the top, solid, surface uneven, dirty yellow or orange.

Bull. 244.—Schæff. 169.—Schmidel. 4. 1.—Buxb. hal. row 2. 1. p. 132.—Batsch. 46.—Mich. 87. 1. 2. 3; the first cop. in Gled. 1. *Clavaria* f. 4.

Cl. pistillaris. β Fl. fuc. n. 1266.

δ HUDS. 638.

This is the largest of the Genus; it is firm, undivided, greatly thickening upwards, solid, smooth, about 3 inches high, and 1 or 2 in diameter towards the top. The shape in the larger specimens is very much like that of a long pear.

VAR. 2. (LIGHTF.) Studded at the top; club-shaped, solid, orange brown.

Schæff. 290.

Shady woods.

Oct.

VAR. 3. Yellow or orange; solid, nearly cylindrical, tapering to a point.

Schæff. 171.—Schmidel. 4. 2.—Bolt. 110. 1. 4. 5. 6, from the left hand, possibly Mich. 87. 5. 6. 9, cop. in Gled. 1. *Clavaria*, f. 1. and Mich. 87. 11, cop. in Gled. 1. *Clavaria* f. 2.

δ Cl. pistillaris. HUDS.

Dirty buff, thick as a thick reed at the bottom, gradually swelling to the diameter of an inch at top; 5 inches high, surface wrinkled, pitted, and puffed out.

Amongst leaves and moss under trees, in Coplar Wood, Herefordshire. Mr. STACKHOUSE.

VAR. 4. Whitish, solid, nearly cylindrical, tapering to a point.

Schmidel. 5. 1.—Bolt. 110, the 2d and 3d from the left hand.—Fl. dan. 837. 1. and 775. 2.—Scheuch. it. 1. 3. 3.—Mich. 87. 12, cop. in Gled. 1. *Clavar.* f. 5.

Clav. vermiculata. LIGHTFOOT.

Woods and heaths in dry soil.

Oct.

VAR. 5. Dull yellow, solid, either entire and blunt, or cloven and tapering at the end.

Bull. 264.—Vaill. 8. 4.

Yellow,

CRYPTOGAMIA. Fungi.

Yellow, brittle, smooth, when young undivided, flattened, grooved, becoming forked with age; terminating in a taper point. BULLIARD.
Grows on the ground.

The plants of this and the following species were united by Linnaeus and Hudson, under the name of *Cl. pistillaris*, but Haller, and after him Lightfoot, very properly divided them; for want however, of attending to the circumstance of the individuals being solid or hollow, a circumstance which seems invariable, some confusion yet remained. We have now arranged them, guided by their structure, and as they naturally fall under two species, the third species of Haller and Lightfoot, called *vermicularis*, and its varieties, associates with one or other of these two. In this disposition of these subjects I am happy to have the concurrence of Mr. Woodward, whose accuracy and industry have added so greatly to the value of this work, and who had, without any previous knowledge of my intention, arranged the plants in question nearly as they now stand.

hollow CLAVARIA *pistillaris*. Nearly cylindrical, generally undivided, hollow, brittle, smooth.—

VAR. 1. Hollow, white; thickest upwards.

Schmiedel. 15.—Bull. 463. 1. A. L. M.—Vaill. 75.

VAR. 2. Hollow, orange or brownish yellow.

Bull. 463. 1. B. N. O.

These plants are very brittle, slender at the base, rounded at the end, sometimes, though rarely, cloven; 2 or 3 inches high, and as thick as a raven's quill.

Woods, heaths, and dry hedge banks.

Sept.—Nov.

VAR. 3. Tapering to a point; crooked, hollow, white.

Mich. 87. 13.

Cl. pistillaris. 7 Huds. *Cl. vermiculata*. LIGHTF.

Woods and pastures.

Autumn.

Helvella CLAVARIA *elveloides*. (Dicks.)—Growing in tufts. Stems very simple, very thick, united at the base, inversely pyramidal, scored. JACQ. misc. ii. 99.

Schæff. 164.—Jacq. misc. ii. 12. 3.

When young fleshy; when fully grown woody, branched, compressed, somewhat funnel-shaped, lopped, the edge plaited, curled, brown with a tinge of purple without, whitish or yellowish within. DICKSON 21. — Inversely conical, about 2 inches high and 1 inch diameter. SCHÆFFER.

Woods on the ground about the trunks of trees.

Aug. Sept.

CLA-

CLAVARIA ophioglossoides. Club-shaped, very black entire, compressed, blunt.—

Schmid. 25.—Bolt. 111. 2.—Bull. 372.—Schæff. 327.—Vall. 7. 3.

—Batsch. 47.—Mich. 87. 4.—Fluk. 47. 3.

About 2 inches high, and near half an inch over in the broadest part; black, smooth, spatula-shaped upwards, white within, and hollow when old. BOLTON. BULLIARD.—I never could perceive any appearance of spherules on this plant. Mr. WOODWARD.

Moist heaths and woods.

Sept. Oct.

CLAVARIA fimbriata. Undivided, hollow, closed fringed and pointed, or open and fringed at the end.—

Greenish at the bottom; white above; hollow, tapering, close and ending in a single or double point; or open at the end and surrounded with a dark coloured glandular fringe. The whole covered with a greyish powder. About the thickness of a pin and near half an inch high.

Edgbaston, amongst moss.

27th Oct. 1790.

*** STEM branched.

CLAVARIA elegans. Somewhat branched, up- elegant right, white. —

Bolt. 115.—Bull. 496. 3. L. M. P.

Club-shaped or branched, 4 or 5 inches high, wrinkled, furrowed, thick as a quill. BOLTON.—Mr. Bulliard considers this as a variety of the coralloides, but I think Mr. Bolton is right in keeping it distinct. It connects the unbranched with the branched species.

Under firs about Fixby Hall, near Halifax.

Sept.

CLAVARIA farinosa. (Dicks.)—Branched, mealy, mealy white. Branches short, lopped, finely scalloped.—

Holm. in nov. act. dan. 1. p. 299. f. 6; on the authority of Mr.

Dickson. ii. 25.

Solitary. Stem upright, somewhat angular, somewhat compressed, branched. Branches unequal, short, thicker towards the ends, bluntly lopped. Whole plant covered with a white meal, which being rubbed off it appears yellow. DICKSON.

Woods on the chrysalises of insects.

CLAVARIA lacinia'ta. (Bull.)—Branched; flat, jagged thin, membranaceous, jagged and fringed above.—

Bull. 415. 1.—Jacq. misc. 14. 1.—Schæff. 291.

Growing

CRYPTOGAMIA. Fungi.

Growing on the ground. From 1 to 2 inches high, branching, irregular in shape. Stems uniting at the bottom, purplish brown, covered with fine mealy white, which easily rubs off. Branches often like an expanded hand, whitish or yellowish brown, the ends jagged and set with several pointed projections tipped with reddish brown. Substance solid; tough.

Edgbaston Plantations.

21st Aug. 1791.

coral CLAVARIA *coralloides*. Branches crowded, very much divided and sub-divided, unequal.—

VAR. 1. Yellow.

Bull. 222.—*ib.* 496. 3. O. Q. and 358. B. D. E. and 496. N.—Schæff. 174. 175. 285. 287.—J. B. iii. 837.—Barr. 1260.—Vaill. 8. 4.—Tourn. 332. B.—Clus. ii. 274. 2, repr. in Ger. em. 1579. 2, and cop. in Park. 1318. 26, and Barr. 1266.—Sterb. 11. at p. 96.

Heaths, groves, and pastures.

Aug.—Oct.

VAR. 2. Whitish, or quite white.

Batsch. 48.—Bolt. 113. d.—Schæff. 170. 176. 286. 287.—Bull. 358. c.

VAR. 3. Reddish.

Schæff. 177.—Barr. 1262. 1259.—Mich. 88. 3, cop. in Gled. 1; Clavaria f. 7.

VAR. 4. Purple.

Bull. 496. G.—Bolt. 113. b.—Schæff. 172.—Barr. 1261.—Pet. fl. 16—15.

Root very large, solid; branches numerous; tops forked, beautifully tinged with purple.

Amongst leaves under trees. Mr. STACKHOUSE.

VAR. 5. Pale olive brown.

Bolt. 113. a.

Pale brown, growing in large tufts. General appearance like a cauliflower. Substance tender. Stems and branches solid; half an inch or more in height. Roots closely compacted together forming a more resisting substance than the stems.

Under the oak tree which hangs over the road down to the horse stew, Edgbaston.

4th Sept. 1791.

VAR. 6. Grey.

Bull. 354.

This species varies almost without end, but may always be distinguished from the *pistillaris*, by growing from one base and being extremely branched. Mr. WOODW.—All the above plants are very brittle and tender, and it is said may be admitted to our tables; the white ones and grey ones I know may be eaten with safety.

CLA-

CLAVA'RIA fastigia'ta. Branches crowded, very yellow much divided and sub-divided, of equal height; (blunt, yellow.)—

Bolt. 112. 2; and 113. 2. b. c.—*R. syn.* 24. 5. at p. 478.—*Buxb.*

iv. 66. 1.—*Scheff.* 174. 170. 172 and 291.—*Bull.* 358. *D. E.*

Whether this be a variety of the preceding, or a distinct species, seems doubtful. The principal difference is, that in the *Clavaria coralloides* the whole plant issues out of one thick and solid stem, which afterwards divides and sub-divides into very numerous branches; but in this species they seem very slightly, if at all, connected at the base, where the distinct stems are much attenuated, and are either simple or slightly branched, and lopped at the top. From these circumstances it may be thought to approach the *Clavaria pistillaris*, but I should consider it as distinct from both. *Vaill.* 8. 4. probably belongs to this as Bolton supposes. *Mr. Woodward.*—Branches thickest upwards, lopped and flat at the ends. Yellow, white, or purple, full 1 to 3 inches high, and thick as a crow or a raven quill. *BOLT. LIGHTF. SCHÆFFER.*—It is evident from the inspection of the various figures, that some have been drawn, as *Bolt.* 112. 2, from plants in a young state. When something older pointed teeth shoot out from the ends, and when older still these become larger and sometimes branched, so that the latter part of the Linnæan character, included in a parenthesis, would be better omitted. Perhaps *M. Bulliard* is right in considering the *fastigiata* as only a flat-topped variety of the *coralloides*.

Woods and pastures.

Aug.—Oct.

CLAVA'RIA muscoi'des. Branches branched, taper- pointed pointed, unequal, pale yellow.—

Scheff. 173.—*Bolt.* 114.—*Bull.* 358, *A. B.*—*R. syn.* 24. 7, at p.

479.—*Fl. dan.* 836. 2—*Pet. gaz.* 93. 4, 5.—*Gesn. ap. Cord. ic.*

æn. 17. 153.

This differs from both the preceding in having the extremities of the branches sharply pointed, but it agrees with the *fastigiata* in being nearly distinct at the base, and with the *coralloides* in being much branched. *Mr. Woodward.*—Yellow or brown yellow, from 2 to 5 inches high, branches like some of the shrubby Lichens, the branches always affecting forked divisions, and terminating in pointed forks.—Am not quite certain of my reference to *Bulliard*, but still less certain that *Mr. Bolton* has rightly referred to *Bull.* 264.

Heaths and dry woods. [*Pendarvis, Cornw. Mr. STACKHOUSE.*]

Sept. Oct.

digitated CLAVA'RIA *digita'ta*. Thick, solid, conical, rough, black.—

Fl. dan. 900.—*Bull.* 220.—*Bolt.* 129. *h.*—*Schæff.* 328.—*Mich.* 54. *ord.* 2, 4.—*Wieg. obs.* 3. 6.—(*Mich.* 52. 2, a different species: Mr. Woodward.)

Substance like cork, tending to a cylindrical figure; black, white within, 1 to 2 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, sometimes rather branched, white at the top when young. Seeds lodged in little cells on the surface, mixed with a glary fluid. These cells are not very visible externally until the hairs fall off. BULLIARD.—This is always branched, several stems arising from the same thick base, which supplies the place of a root. If any of Bolton's figures are intended to represent this, they are so ill executed as not to be safely quoted; Mr. WOODWARD;—who considers it as a Sphæria, and dissatisfied, very justly, with the insufficiency of the Linnæan character, adopted by Mr. Hudson, proposes the following. *SPH. digitata*, ramosa, ramis sub-fessilibus oblongis, apicibus obtusis.

On rotten wood.

Aug.—Nov.

horned CLAVA'RIA *Hypox'ylon*. Branched, compressed, horned. LINN.—Very black, rough, hand-shaped. Horns flat, fleshy, powdery. HALLER.

Bolt. 129. *b. c. i. e. f.*—*Bull.* 180.—*Wieg. obs.* t. 3. *f.* 5.—*Mich.* 55. *ord.* 1. 1.—*Walc. n.* 7.—*Pet. gaz.* 67. 12.—*Batsch.* 160.

From 1 to 3 inches high, and $\frac{1}{4}$ to $\frac{1}{2}$ across; very woolly when young, and very black; the tops tender and gelatinous whilst young, white, mealy; flesh white, fibrous, rather woody. The white tops turn brown and shrivel towards the end of winter, when the seeds ripen. Seeds in cells on the surface below the white part.

On rotten wood. On the stumps of alders which have been cut down 6 or 7 years, plentiful, and in almost every variety of shape and size. Pool tail in Edgbaston Park. It may be found all the year, but not plentiful in the summer. The tubercles first appear below the white extremities, on a less white part, and they are black.

VAR. 1. Flat, thin, inosculating; but little hairy.

Fl. dan. 713.—*Mich.* 66. 3.

No part broader than a packthread; but variously run into one another. Mr. WOODWARD.

Between 2 thick oak plants which covered a well. Mr. WOODW.—In a similar situation over a well in a cellar at Mr. Warltire's at Wolverhampton. I have seen it 2 or 3 feet long, and between the bark and the wood of a large elm in Edgbaston Park which had been shivered by lightning, I found it in the matted state mentioned by Mr. Woodward.

VAR.

VAR. *ε*. Hudson, is the *Boletus rangiferinus*.

The *Clavaria Hypoxylon*, and *digitata*, run so much into one another, that I do not see how it is possible to establish them as distinct species, but have at present kept them separate in compliance with the opinions of Linnæus, Haller, Hudson, Lightfoot, Bulliard, &c.—Mr. Bolton is certainly mistaken when he asserts that the *Cl. Hypoxylon* in a perfect state becomes the *Cl. digitata*. Mr. Woodward.

CLAVA'RIA *cupressiformis*. But little branched; *cypress* head conical, supported on a stem.—

Mich. 55. 2.—Bolt. 129. g.

This plant seems to me to differ very essentially from the *Cl. digitata*. It is generally simple, or only once divided. Stem about $\frac{1}{2}$ an inch high, supporting a head about the same length, which is always conical, resembling a cypress tree in miniature. Mr. WOODWARD.—I had arranged this as a variety of the *Cl. Hypoxylon*, but now place it as a distinct species on Mr. Woodward's authority, who reckons it, as he does the others of this tribe, as belonging to the genus *Sphæria*, and favoured me with the following specific character, from which the English character, given above, is taken.

SPH. cupressiformis sub-simplex, stipitata, capitulo conico.

On decayed wood. Mr. WOODWARD.

CLAVA'RIA *parasitica*. Unbranched. Head *parasitic* oval, supported on a stem.—

Willd. berol. 7. 17.

This singular fungus is always fixed to a *Lycoperdon*. It is very like the *Cl. ophioglossoides*, but differs in being softer in its substance, and sooner decaying. The head is never compressed, as in that species, and is always scated with minute papillæ. When old it is hollow at the top. WILLD. p. 405; who gives its specific character thus:

Cl. parasitica, clavata, nigra, simplicissima, stipite tereti, corpore oblongo tereti, obtuso papilloso—but I have preferred that of Mr. Woodward as being shorter, but yet sufficient. He ranks it as a *Sphæria*, with the following character.

SPH. parasitica simplex, stipitata, capitulo ovali.

I am indebted for the knowledge of this plant to Mr. Woodward, and also for the following observations:—Willdenow calls the *Lycoperdon* on which this grows *L. scabrum*, and says it differs from the *Tuber cibarium*, which it certainly does, but I do not see that it differs in any respect from our *T. cervinum*. This plant is never branched, though frequently growing in clusters, in one instance as many as seven together. Root consisting of many long, wiry, brown fibres, with which it entwines and covers the surface of the *Tuber*, but never penetrates

its substance. Stem slender, about 1 inch long. Head oval, about $\frac{1}{2}$ an inch high, covered with minute Sphæriæ. It differs from *Cl. digitata*, in size, in standing on a stem, and in being unbranched; and from *Cl. cupressiformis* in having a longer stem, an oval head, and the spherules much more minute; and from both in its peculiar habit, and the long fibres which form the root. Found on a heath near Norwich some years since, and sent me by Mr. Pitchford. Mr. WOODWARD.

T U B E R.

Ess. CHAR. Stemless; fleshy, solid, not becoming powdery, not opening at the top.

Truffle T U B E R *ciba'rium*. (BULL.)—Globular, solid, warty, without a root.—

Bull. 356.—Mich. 102, *Tuber*, cop. in Gled. 5. 10, and 6. 7.

—Tourn. 333.—Matth. 544, cop. in Sterb. 32, the uppermost A.

—Lonic. ii. 15.—J. B. iii. 849.—Dod. 486. 2, repr. in Lob. ic. ii, *Tubera*; Ger. em. 1583. 8, and cop. in Park. 1319. 30, and imit. in Sterb. 32, the middlemost A.—Ger. 1385. 3.

Globular, of the size of a plumb, white, rough with elevated dots, in the center containing a brown powder like that of *Lycoperdon Bovista*, but in small quantity, opening with a rent. LINN. suec. n. 1281.—It is found under the surface of the earth, at the depth of 4 or 5 inches. It has no proper root. Its colour dark, approaching to blackness. White within when young, but when old black with whitish veins. BULLIARD.

Truffles. *Trubs*.—Under ground in high woods and pastures. On the Downs of Wiltshire, Hampshire, and Kent. Sept.—May.

This is one of the esculent Fungusses, and one of the best of them. Dogs are taught to hunt it, and when they scent it they bark a little and begin to scratch up the earth. Pigs likewise in Italy root it up, and an attendant takes it from them.

whitish T U B E R *al'bum*. (BULL.)—Tawny white, without a root, but rooted by its base.—Varioussly shaped, roundish, convex, hunched, somewhat wrinkled, solid, whitish. DICKSON ii. 26.

Bull. 404.

Two to 3 inches long, and about 2-3ds as much in width. A section of its inside shews very like a piece of Rhubarb. BULLIARD.—Half of it lying beneath the surface of the ground. Somewhat yellowish when dry. Nearly allied to *L. Tuber*. DICKSON.

Lycop. gibbosum. DICKSON.

Woods.

VAR. 1. Uniform, tanned leather colour within.

About a fourth part buried; near 2 inches diameter; surface knobby and pitted; hairy in the pits; substance uniform, like cork, colour not variegated. The whole mass perforated by stems of grass, so that it must have been above ground in a soft state. I suspect it will prove to be a distinct species.

Under a Spanish chestnut tree, in Edgbaston Park.

Aug.

TU'BER *cervi'num*. Globular, rather solid, rent, *tawny* powdery in the center, without a root.—

Mich. 99. 4. cop. in Gled. 5. f. 11.—Sterb. 32, the uppermost B.

—Gars. 115. A.—Lob. ic. ii. 276, *Tubera cervina*, cop. in J. B.

iii. 851, and in Park. 1319, the 2 figures on the right hand, and imit. in Sterb. 32, the lowermost B.

(*L. cervinum* Bolt. 116, is *L. spadiceum*.)

Tawny on the outside and granulated; the outer coat hard. Whitish or purplish within. About $1\frac{1}{2}$ inch diameter. MICHELI.

Woods and hedges. Cane Wood near Hampstead. R. syn. 28. —In Devonshire. HUDS.—[In a wood near Woolhope, Herefordsh. It grew just on the surface under a tree, and was split in wide fissures so as to resemble a cluster of chestnuts. Mr. STACKHOUSE.]

TU'BER *sol'idum*. Globular but compressed, brown, *solid* reticulated, very firm; blue black within.—

Vaill. 16. 5. 6.—Schæff. 188. f. vii. the section accords with our plant, but the root is such as I have not seen.

Globular but compressed. Diameter 1 to 2 inches. Inner coat tough and woody; outer skin thin, brown, cracked, but not papillose. Inside firm, solid, blue black, even from its youngest state. It seems composed of black grains, imbedded in a grey cottony substance, so that when broken it appears more grey than when cut; for then the inside of the granules appear black from being cut through. Stems. Root short.

Edgbaston, under an oak tree by the Pool.

13th Aug. 1791.

TU'BER *radica'tum*. Roundish, compressed; radical *rooted* fibres from the surface, collecting so as to form a root.—

Bolt. 116.—Mich. 99. 3. and D.—Sterb. 32. the 2 middlemost. B. B.

From 1 to 2 inches or more in diameter. Root none, but radical fibres are connected with different parts of its surface. When it rises out of the ground, the fibres which are undermost unite themselves and form a kind of root. It is at first brown, and rough, and milk white within. When it is risen above the surface of the ground it assumes various colours, as yellow, or green, or reddish brown.

CRYPTOGAMIA. Fungi.

The inside now changes to purple, variegated with black veins, and at length becomes wholly black. The rind is very strong, and never breaks open like that of the *Lycoperdons*. BOLTON.

Lycop. cervinum. BOLT.—*Lycop. spadiceum*. DICKS.?—The *L. aurantiacum* of Bulliard cannot be the same with this, for it is a real *Lycoperdon*, and opens at the top. *Lyc. spadiceum* Schæff. 183 has been referred to this, but the solid stem and the habit do not agree.

On heaths, rare.

April.—Sept.

1333. LYCOPER'DON. Puff-ball.

FUNGUS roundish; opening at the top; full of powdery impalpable Seeds.

Ess. CHAR. Fleishy, firm, becoming powdery and opening at the top.

* WRAPPER permanent.

cullander

LYCOPER'DON *colifor'me*. Wrapper with many clefts, expanding. Head spherical, depressed. Fruit-stalks and mouths numerous.—

Dicks. 3. 4.

Wrapper when ripe splitting into several segments which lie flat on the ground, expanded in form of a star. Head pierced with several mouths from which the dust escapes. DOODY in R. syn. 28.—Wrapper leathery, at first inclosing the head, when ripe splitting elastically into several segments; segments unequal, towards the ends marked with spots, the relics of the mouths of the head. Fruit-stalks supporting the head, several, short, near together, compressed, almost woody. Head brownish, covered with a thin silvery pellicle, the upper surface pierced with holes, full of a brown dust. Mouths small, round, fringed, somewhat elevated. DICKS. — This *Lycoperdon* springs from an egg which lies on a level with, or just below the surface of the ground. In this state it is nearly globular, but slightly compressed, of a dirty white, wrinkled, scaly; with a short thick root terminated by a few fibres. Cut open it shews a soft leathery coat, covering another which is thicker and much more tough, filled with a white curd-like substance of a disagreeable smell. As yet there was no appearance of a head. One found in August remained in this state to the end of November before it expanded; when in a single day it was entirely raised out of the ground and fully expanded. The root breaks off, and is left in the earth, and the inversion of the

the plant necessarily raises it to the surface, what was before the upper and outer part of the wrapper being now next the ground. This description of the method of opening applies to the *L. stellatum* and *L. recolligens* as well as to this species. The head in the larger specimens is considerably compressed, of a brownish colour, covered with a very thin pellicle of a beautiful silver grey, peculiar to this species. The apertures are very numerous, slightly elevated and fringed with fine hairs. The pedicles which do not appear till the thick brittle coat (which is common to this and the other stellated species) dries or peels off, are very numerous, woody, thread or strap-shaped. In one specimen they filled up a circle of $\frac{1}{2}$ an inch in diameter, and this had at least 40 apertures. In the small specimens the head is nearly spherical, and sometimes the pedicles and apertures are not more than 3 or 4; but these are hardly to be considered as varieties. Notwithstanding there seems to be a sort of correspondence between the number of pedicles and of apertures, they have no direct communication, nor any corresponding cells, the head forming a single cavity as in the other species. The apertures are not accidental ruptures, but originally formed, for in an abortive plant, found in company with Mr. Stone, in which the dust never ripened, we observed a puckering of the skin in the same situation where the mouths usually appear. Mr. Woodward.

In the lane from Crayford to Bexley Common, Kent. Doody in *R. syn.* 28.—Sandy banks near Mettingham, Suffolk; and Gillingham, and Earsham. Norfolk. Mr. Stone and Mr. Woodw. —[Near Hanley Castle, Worcestershire. Mr. Ballard.]

August, Sept.

LYCOPER'DON *stellatum*. Wrapper with many stellated clefts, expanding. Head on a short stem, smooth. Mouth tapering upwards, toothed.—

Bolt. 179.—*Gent. Mag. feb.* 1792.—*Bryant Lyc. f.* 12. 13. 14. 16. 17.—*Ray syn. p.* 29. *T.* 1. *f.* 1.—*Mich.* 100. 2.—(Schaff. 132, these are stemless, but so well represent our plant, in a recent state, that I do not hesitate declaring it to be such. It is referred to Ray's figure which has a stem. *Mich.* 100. *f.* 5. The fig. of *Tourn.* and *Fl. dan.* are too bad to be quoted. Mr. Woodward.)

When fresh opened the head appears sitting, owing to the thickness of the interior spongy coat of the wrapper. After a few days, this cracks, as represented by *Mich.* t. 100. *f.* 5, and peels off, and then the stem appears. I apprehend it to be owing to this that some authors have described the head as sitting, and others as supported on a stem, and it is therefore very difficult to ascertain whether they speak of this plant or of the *L. recolligens*. Mr. Woodward.—

Mouth.

CRYPTOGAMIA. Fungi.

Mouth often smooth when first open, but in time splits into teeth. Mr. ROBSON.—Head about 1 inch diameter, bluish brown. Wrapper brown.

Meadows, pastures, hedge banks.

Sept. Oct.

VAR. 1. Head flattened. Mouth long, taper; teeth large.

Bryant Lyc. f. 19, the head only well expressed. Mr. WOODW.

This, which is found on dry banks, usually amongst Ivy, is different from being smaller, and having the head flat at top, and the mouth extremely conical. It is almost black when dry, and the Rays usually turn up at the point, but do not rise so as to cover the head in the manner of *L. recolligens*. Mr. WOODWARD.

turret **LYCOPER'DON** *fornicatum*. (HUDS.)—Wrapper with 4 clefts; arched. Head smooth; mouth blunt, fringed; stem short.—

Schæff. 183.—Phil. transf. abr. x. 20. p. 107; cop. in Blackst. at p. 24, but the outer coat too smooth.—Batsch. 168.—Bryant Lyc. 15 and 20.—Ballar 39. f.—4.

The Rays may be sometimes 3 or 5, but only accidentally. The double wrapper adhering by the points which is never seen in any of the varieties of the *L. stellatum* is a grand distinctive mark, for the wrapper remains sunk in the ground, not being reversed and thrown out as in the *stellatum*, &c. Mr. WOODWARD.—Wrapper $1\frac{1}{2}$ inch in diameter, rough and ash coloured on the outside, smooth and whitish within. Inner coat whitish within, reddish yellow without. Head oblate spheroidal, brown, $\frac{6}{8}$ ths of an inch in diameter. Stem hardly $\frac{1}{4}$ of an inch in height. Dr. WATSON in *Phil. transf.*

Meadows and pastures, at Buckebury, 10 miles from Reading, about Wickham, near Bromley, Kent; BLACKST.—near Doncaster, TOFIELD in *fl. ang.*—Near Norwich on the slopes of old banks in a loamy soil, mostly in an eastern and next to that a western aspect, commonly at the root of a shrub or tree. BRYANT.—On the Links, Newmarket Heath. RELH.—[Near Hanley Castle, Worcestershire. Mr. BALLARD.]

Oct.—Jan.

hygrometer **LYCOPER'DON** *recol'ligens*. (SCHMID.)—Wrapper with many radiating spear-shaped segments; Head sitting, globular but compressed, aperture tapering upwards. Mr. WOODWARD.

Schmid. 27 and 28, f. 20 to 31.—Bull. 238 and 471. 1.—Mich. 100. 5, cop. in Gled. 6, Lycoperdon f. 2.—Bull. 238.—Bryant f. 10.

The rays of the wrapper when fully expanded seldom exceed $1\frac{1}{2}$ inch, though I have found them twice that size. They are nearly equal, and regularly spear-shaped. Outer coat of a bright silvery white; inner coat much thinner than in any other species and does not crack and flake off, but soon dries, when it acquires a chestnut colour; smooth, rather shining. Head compressed, yellow white or dirty buff, perfectly stemless. Mouth conical, ciliated. Segments of the wrapper when dry entirely inclosing the head, when moist expanding and perfectly flat. It may be made to undergo these changes at pleasure by putting it in a saucer with a very little water, when in an hour or two it will expand and again contract if suffered to dry. This property it retains for years if kept in a dry place. Plants of the *Lycoperd. stellatum* often appear stemless, but in a few days they invariably shew the foot-stalk. Mr. WOODWARD.

Earsham, Norfolk; and Mettingham near Bungay, Suffolk. Mr. WOODWARD.

LYCOPER'DON *Carpobolus*. Wrapper with many *projectile* clefts. Fruit globular, composed of seeds united together.—

Fl. dan. 895.—*Mich.* 101. 1, 2.

Whitish, of the size of a pin's head, opening into an expanding border with 5, 6, or 7 clefts. From the disc an oval vesicle as tall as the disc, leaps up, exploding its contents with an elastic spring. FORSKAHL in *Linn.*—This peculiar property of the *Carpobolus*, whence it has its name, seems to remove it from the *Lycoperdons*, though the leathery sac containing the seeds brings them near together. If this be made a distinct genus, the *Mucor urceolatus* will associate with it. Mr. WOODWARD.

On rotten saw dust. BROWN in *Dill. musc.* 55. On rotten wood in woods and hedges. HUDS. Aug.—Oct.

** With a Stem.

LYCOPER'DON *pedunculatum*. Stem hollow, *long-stalked* long. Head globular; smooth. Mouth cylindrical, very entire.—

Bull. 294.—*Batsch.* 167.—*Tourn.* 331. E, F.

Stem hollow, cylindrical, stiff, near an inch high, and thick as a swallow's quill. Head globular, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, rather compressed, aperture small, oblong, surrounded with a tubular ring. Colour pale, ochrey. BATSCHE.

Meadows and pastures. [Common about London. Mr. WOODW.] August—Oct.

CRYPTOGAMIA. Fungi.

pitted LYCOPER'DON *verruco'sum*. Stem very short, root large; head globular but compressed, olive brown, pitted.—

Bull. 24.

Head yellow, pitted, like the remains of the small pox, the pits very minute and varying in depth; diameter 1 to 1½ inch. *Flesh* white, changing to pinky when exposed to the air, woolly. *Seeds* pinky grey. *Stem* solid, very short, white, thickening into a large woody root.

Edgabaſton, by the Little Pool dam.

24th Aug. 1792.

parasitic LYCOPER'DON *paraſit'icum*. On a ſtem. Head nearly globular, tawny, brittle. *Seeds* black. Mr. Wood.

This elegant little plant was ſent to me by the Rev. Mr. Wood, of Leeds, in the year 1784. It grows in cluſters upon other plants; one cluſter of thoſe I received were attached to a ſtem of graſs, and another to a piece of Hypnum. The ſtem is cylindrical, yellow white, about 1-20th of an inch in length. The head globular, dull yellow or tawny, thin, brittle, opening at the top and diſcharging a black powder. Its ſize that of a ſmall pin's head.

In the neighbourhood of Leeds, Yorkſhire. Mr. Wood.

Nov. Dec.

orange LYCOPER'DON *aurantia'cum*. Sphæroidal; wrinkled at the baſe, furniſhed with a ſhort ſtem; ſegments at the opening bluntly notched.—

Bull. 270.—Vaill. 16. 9. 10.—Mich. 99. 2.

The ſtem or neck much plaited where it joins the root. The ſubſtance bluſh purple, changing to tawny when the ſeeds are ripe. Its ſhape reſembles that of a turnip, its colour varies from pale to greeniſh yellow, to orange or dull dirty yellow; its diameter from 2 to 5 inches. BULLIARD.

I am obliged to Mr. Relhan for the knowledge of this being an Engliſh ſpecies. He tells me he found it on a common near Derby.

*** Nearly STEMLESS; large.

variable LYCOPER'DON *pro'teus*. (BULL.)—Roundiſh, turban-shaped, or thinner downwards. *Flesh* white; ſeeds dark coloured; ſkin thin, flaccid.—

Lycoperdon (*Boviſta*) ſubrotundum: lacerato-dehiſcens. LINN. and its varieties.

Obs. Growing on the ground, when young white, or pinky grey; tawny grey when full grown, and brown when old. BULL.—The arrangement of this species and its numerous varieties is taken from M. Bulliard, whose figures and descriptions are far superior to those of any of his predecessors. Surrounded with three coats; the outer coat tender, easily abraded, the middle coat tough, leathery, smooth; the inner coat connected with the substance. BOLT.

VAR. 1. *great*. Globular, fitting, very large.

Bull. 447.—Schæff. 191.—Clus. ii. 288, repr. in Dod. 484, and cop. in Park. 1323. 32.—Sterb. 28. C. E.

Sometimes as much as 12 or 15 inches in diameter.

L. Bovista. 3 HUDS.—L. Bovista. 1. LIGHTF.

Bunt. Frog-cheese. Puckefist.

Pastures, and road sides amongst grass.

The fumes of this when burnt have a narcotic quality, and on this account it is sometimes made use of to take a hive without destroying the bees. This too as well as the former is sometimes used as a syptic.—It is used to carry fuel in from a distance.

VAR. 2. *onion-shaped*. Globular but flattened.

Bull. 435. 2.—Schæff. 184.—Mich. 97, 3 and 4, cop. in Gled. 5. 5.
—Bolt. 117. c. d. e.

Sometimes pointed at the top, sometimes a little tapering at the bottom. Surface smooth, or scurfy, or cracked; sometimes almost prickly at the top. From $\frac{3}{4}$ to $1\frac{1}{4}$ inch diameter. Root, a small bundle of black fibres.

Lycop. Bovista. 5. LIGHTF.

Very common.

VAR. 3. *egg-shaped*. Shaped like an egg, the small end downwards.

Bull. 435. f. 3; and 475.

Often grows in clusters. Sometimes the lower part tapers so much as to form a kind of stem; its surface is smooth, or granulated, or scurfy. About the size of a pigeon's egg. BULLIARD.

On old turf, common.

VAR. 4. *pear-shaped*. Running insensibly into the preceding and succeeding varieties.

Bull. 32 and 475. B. D. M.—Schæff. 185—189.—Bolt. 117. d.—Mich. 97. 5.—Tourn. 331. A. B.—J. B. iii. 848. 2.—Garf. 279. 3.
—Sterb. 29. F.

One to 2 inches or more in diameter. Tapering at the base, sometimes so as to give a stem-like appearance. Surface smooth, or granulated or rough as if prickly. Substance within grey, changing to brown. BULLIARD.—In clusters. About $1\frac{1}{4}$ inch high, and $\frac{3}{4}$ diameter. Pear-shaped, puckered towards the root, not filled with dust,

dust, therefore easily compressible. Brown on the outside, thick set and rough with rising dark brown prominencies, on a ground of a lighter brown. Inside covered with a soft woolly substance, amongst which the dust is lodged. A receptacle, or more solid tuft of the same woolly substance also rises up in the middle from the root. Such is the description of the smaller specimens, the larger ones are shaped like the head of a knobbed walking stick; varying greatly in size, from 1 to 2 inches high, and from $\frac{1}{2}$ to $1\frac{1}{2}$ in the greatest diameter; bursting at the top. Colour white. Surface studded with rising papillæ, of different heights, some blunt, others pointed and black at the points. Studs on the stem part much fewer than on the globular part. Inside white when young, greenish grey when older. The bulbous part more solid, the stem part more cellular.

Lycop. Bovista. γ HUDS.— ζ HUDS.—L. Bovista. 2. LIGHTF.
Pastures, Edgbaston.

Aug.—Oct.

VAR. 5. *winter*. Plaited at the bottom; turban-shaped; with or without a stem.

Bull. 72, and 475, E.—Schæff. 186—190.—Bolt. 117. a. b.

When ripe and shedding its seeds, there appears like a partition between the upper globular, and the lower stem-like part; and the contents of this latter part are rather pithy than powdery and seed-like.

Lycop. Bovista. α HUDS.—L. Bovista. 5. LIGHTF.

In woods and pastures; late in the autumn and in winter.

VAR. 6. *pitted*. The lower stem-like part irregularly pitted.

Bull. 52.—Vaill. 12. 15.—Schæff. 295.—Bolt. 117. f.

VAR. 7. *rough*. Prickly; tapering at bottom so as to form a stem.

Bull. 340.

This gradually runs into the pear-shaped variety. The prickly coat readily separates. The stem-like part is separated from the head by a transverse membrane. From 1 to $2\frac{1}{2}$ inches in diameter. BULLIARD.

Lyc. Bovista. ϵ HUDS.

VAR. 8. *pestle-shaped*. Stem thinnest upwards.

Bull. 450. 2. and 475, F. G. H. I.—Bolt 117. g.—Vaill. 12. 16.

—Schæff. 137.—Mich. 97. 1, cop. in Gled. 5. *Lycoperd. f. 4.*

—Mich. 2.—Mich. 98. 1.

Surface rough or smooth. Stem generally thickening downwards. Globular part from 1 to 2 inches diameter. Stem near 3 inches high, and about 1 inch diameter. BULLIARD.

Lycop. Bovista. η HUDS.—L. Bovista. 3. LIGHTF.

Woods, [near Bath. Mr. STACKHOUSE.] Summer and Autumn.

LYCOPER'DON *globo'sum*. (BOLT.)—Stemless, globe white, changing to black, a regular globe, with only two coats.—

Bolt. 118.—Sterb. 29. H.

Snow white when young, and white within; black in decay. Opens with a very large aperture; diameter about 2 inches. BOLTON.

Fields, very common.

LYCOPER'DON *defos'sum*. (BATSCH.)—Stemless, leathery, globular, when open the coats turning in; half buried in the earth.—

Batsch. 229.

Rudely semi-globular when ripe, $1\frac{1}{2}$ to 2 inches diameter, compressed, and opening with large rents at the top, when quite open the coats curl inwards. Base rude, knotty, buried in the earth. Skin thick, leathery, strong, dirty yellow white, or brown, very uneven, but not rough. Powder brown dirt colour, not evidently intermixed with woolly fibres, but brittle. BATSCH.—More leathery than any I have seen, with a very large leathery root. MR. STACKH.

Drawing sent me by Mr. Stackhouse, but no habitat.

LYCOPER'DON *ardosia'ceum*. (BULL.)—Stemless; slate-coloured nearly globular, flexible, purplish lead colour, red within, changing to brown.

Bull. 192, the 4 lower figures to the right hand.—Batsch. 166.

Grows on the ground only. Exists long after the dispersion of the seeds, and rattles like parchment. BULLIARD.

Common on sandy heaths in Norfolk. MR. WOODWARD.

**** STEMLESS; small.

LYCOPER'DON *gossyp'inum*. (BULL.)—Head pear-cotton shaped, white, cottony, tapering downwards so as to form a stem. Seeds brown.—

Bull. 435. 1.—Bolt. 178.—Willd. fl. Berol. 7. 20.

From $\frac{1}{4}$ to $\frac{1}{2}$ inch high, wholly white, soft, flexible, cottony. Stem taper, or bellying. Head from 1 to 2-10ths of an inch diameter. wholly brown when old. BULL. and BOLT.

On rotten wood. BULL.—On old hoofs of beasts. BOLTON.

LYCOPER'DON *pisfor'me*. Stemless, globular, pea rough. Mouth perforated.—

Jacq. misc. i. 7.

The size of a pea; fitting, crowded, brownish, rough with minute warts, opening at the top. Mouth smooth. Nearly allied to the *L. epidendron*, but has only one coat, whereas that has two. JACQ.—Mr. Bulliard from inattention to this circumstance has placed it as a variety of the *L. epidendron*. It is either tawny or smoke coloured, but always rough and warty, whereas the *Lycoperdon epidendron* is smooth.

yellow **LYCOPER'DON** *epiphyllum*. Clustered, parafitcal. Mouth with many clefts, torn. Dust tawny.—Small, fitting, tawny, variable in figure, RELH. n. 983.—not *Lyc. epiphyllum* of Lightfoot, which is *Trichia turbinata*.—

On the back of the leaves of *Tussilago*. Decaying wood, leaves, and mosses. [On the leaves of *T. Petasites*. Mr. WOODWARD.]
Aug.—May.

ash-coloured **LYCOPER'DON** *cine'reum*. (BATSCH.)—Blue grey, globular, rough and branny. Seeds like sand, large, black, intexmixed with zigzag white fibres.—

Batsch. 169.—Mich. 96. 9.

About the size of a pin's head; brittle. BATSCH.

Found by Mr. Relhan on rotten leaves in Madingley Plantations, Cambridgeshire.
Aug.

purple **LYCOPER'DON** *Epidendrum*. Small, globular, brittle. Bark and dust purple.—

Bull. 503, and 192, the lower left hand and the upper right hand figures.

—*Bolt. 119. 1.—Fl. dan. 720.—Schæff. 193.—Buxb. v. 29. 2.*

—*Mich. 95. 2. A.*

This plant is globular, from $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter. When unripe the flesh is red; when ripe, the seeds are pinky grey.

It is 1. Orange coloured and smooth.

2. Vermillion coloured; black at the bottom.

3. Lead coloured; smooth.

The tawny and smoke coloured varieties of M. Bulliard belong also to the *Lyc. epidendrum*, but it does not appear that they have yet been found in this Island.

An elegant little fungus when fresh. Purple; frequently confluent. Mr. WOODWARD.

Not properly a *Lycoperdon*.

Lyc. variolosum. HUDS.

On rotten wood, after rains. [At Field Dalling, Norfolk, on an old block. Mr. WOODWARD.]

LYCOPER'DON *frag'ile*. (DICKSON.)—Parasitical, *brittle* mostly sitting, inversely egg-shaped, brown. Bark shining, brittle. Meal black, with soft hairs intermixed.—

Dickf. 3. 5.

Pear-shaped, about 1-10th of an inch high, and nearly half as much in breadth. *Stem*, when any, membranaceous. It grows in clusters, and if the head when young should prove to be whitish, transparent or bladder-like, it must be referred to the genus *Mucor*. DICKSON.

On ling, moss, leaves of ivy, &c.

RETICULARIA. (BULLIARD.)

Ess. CHAR. Soft and gelatinous when young; when older firm, friable, tearing open indiscriminately and discovering Seeds entangled in capillary fibres, reticulated membranes, or leathery cases.

OBS. Never subterraneous; generally growing on other vegetables; seldom with stems, cushion-shaped or globular. Sometimes serpentine in its figure. BULLIARD.—It is nearly allied to the genus *Trichia*, and also to some of the *Lycoperdons*. It seems to include what Haller intended by his new genus *Fuligo*; and probably a little more observation will demonstrate that neither the *Fuligo* of Haller, nor the *Reticularia* of Bulliard, can properly embrace the whole of the other, and therefore that both must be adopted.

RETICULARIA *Lycoper'don*. Stemless. Capsule *puff-ball* membranaceous, somewhat egg-shaped, fibrous within.—

Bull. 476. 1.—Bolt. 133. 2.—Mich. 95. 1, Lycogala; cop. in Gled. 6. Mucor. f. 1. a.

Brown and somewhat pear-shaped when young; white and egg-shaped when old. From $\frac{1}{2}$ inch to more than an inch long, and half as much in diameter. BOLTON.

Mucor Lycogala. Bolt.—Lycoperdon fuscum. HUDS.

On rotten trunks of trees. Sept.—May.

VAR. 1. Brown, powdery and brown within.

I was long doubtful under what genus this ought to be placed. It rents open indiscriminately, which excludes it from the *Lycoperdons*, and in its want of evident woolly fibres or membranes, it appears

appears to differ from the *Reticularia*, and the powder not being black excludes it from the *Fuligo* of Haller. But in the larger specimens and in its more advanced stages of growth, the woolly fibres become sufficiently evident. I have always found it upon cloven oak rails. It is generally egg-shaped, but flattened on the side next the rail, to which it adheres by a large surface, without any evident root. It is from the size of a large pea to that of a Spanish chestnut. Its colour brown, or reddish brown like a chestnut, but this latter colour only appears where it loses its outer skin, which is silvery grey. The surface is smooth and shining, the whole substance very light, and the coats very thin and brittle. The powder is of a reddish brown colour, and so extremely fine that the most powerful microscope is necessary to shew that its component particles are egg-shaped. When rubbed upon the hand it prevents its being wet though immersed in water.

The figures cited for the *Reticularia Lycoperdon* would convey a good idea of it, were they of the right colour, and Schæffer, pl. 95, f. 3, is something like it, but too rough. I have never found it in a soft state.

July—Sept.

custard RETICULARIA *sep'tica*. Yellowish, viscid, slimy, of various shapes.—

Schæff. 194.—Fl. dan. 778.

This always grows on decayed wood; is of a smooth uniform substance, not wrinkling like the *R. ovata*. In drying it forms a smooth, thin, shining coat, instead of the scales which compose the outer coat of the latter. At first it resembles thick cream, or the running of cream cheese. Mr. WOODWARD.

Mucor septicus. LINN.

On rotten wood, &c. [On old stumps of trees, frequent. Mr. WOODWARD.]

Sept.—May.

VAR. 1. Whitish.

Bull. 424. 2.

Large, cottony and soft when young; brittle when old. Seeds in large membranaceous cells. BULLIARD.

Reticularia hortensis. BULLIARD.

VAR. 2. Reddish.

Schæff. 195.

Have frequently seen it tinged with red, and sometimes more so than the fig. in Schæffer's plate. Mr. WOODWARD.

RETICULARIA *ova'ta*. Stemless, egg-shaped, *frothy* mucilaginous, hairy, yellowish. Gills cellular, vanishing, turning to dust, blackish. Seeds black, adhering to threads. *SCHÆFF. ind.* 132.

Schæff. 192.—*Bolt.* 134.—*Mich.* 96. 2.—*Bull.* 380. 1.

On moss or leaves bright yellow; on tanner's bark pale brown, and on this last it sometimes covers a surface of more than a foot diameter. Haller ranks it, as Lightfoot observes, under his genus *Fuligo*, with the characters of which both this and *Lycoperdon epiphyllum* correspond. Mr. WOODWARD.

M. septicus of Lightf. 1073. Mr. WOODWARD.

Woods on grass and other herbage.

Aug.

VAR. 1. White, frothy, large, turning to a black powder.

Bull. 326.

I once found this on the stump of an elm which had been fawn off close to the ground, of a very great size, not less than $\frac{1}{2}$ inch thick in the mass, and from 12 to 15 inches diameter. It continued white about 5 days.

Reticularia alba. BULLIARD.

S P H Æ ' R I A. (HALLER.)

FRUCTIFICATIONS mostly sphaerical, opening at the top, whilst young filled with jelly, when old, with a blackish powder.

SITUATION, on the bark or wood of other plants. *Capsules* often immersed, so that their orifices only are visible.

OBS. This genus has been much enlarged, in consequence of the attention lately bestowed upon the minuter fungi, but I cannot consent to arrange any of the *CLAVARIAS* under it, for though the discoveries of Micheli and some later botanists, have shewn in some species of *Clavaria* an agreement in the structure of the Capsules, with those of the *Sphaeria*, yet Schmidel has demonstrated a similar structure in still other species of *Clavaria*, and it most probably prevails in all, so that the two Genera must on this ground be melted into one, notwithstanding the very striking differences in other respects. Indeed if this principle were allowed, it is probable that the Lichens must also be brought into the same Genus, nor is it easy to say where the confusion would end. Under this Genus several plants are placed which I am aware do not very well accord with their situation, but as our knowledge is not yet sufficient to enable

us to strike out an unexceptionable arrangement of them, it is perhaps better to submit to the present inconvenience, than to increase the confusion by a premature attempt at reformation. Mr. Bulliard has divided the Sphæria of Haller into two Genera, viz. Hypoxylon, and Variolaria; his genus Sphærocarpus also contains one or two species which some would think might associate with the Sphæria's. But though I have not adopted Mr. Bulliard's method, for reasons just now assigned, yet I am persuaded that something like it will soon be thought necessary.

* With a STEM.

insect SPHÆ'RIA *entomorhi'za*. Head roundish, brown, supported on a stem. DICKS. 22.

Dicks. 3. 3.

Stem single or double, somewhat compressed, 2 inches high and upwards. *Head* spherical, granulated on the surface. DICKS.—This having been called a Sphæria by the authority above-mentioned, must stand under this genus, but the mode of fructification does not appear to have been sufficiently attended to. Its habit speaks it to be a MUCOR.

On the dead larvæ of insects in woods near Bullstode, Buckinghamshire.
Autumn.

glaucous SPHÆ'RIA *glau'ca*. Naked. Spherules turban-shaped, sea green without, white within. BOLT.

Bull. 470. 2.—*Bolt.* 120. 2.—*Batsch.* 169.

In the specimens and drawing I received from Mr. Knapp, the stems are rather more distinct than they are represented in Mr. Bolton's figures.

Lich. cæruleo-nigricans. RELH. 847.

Sphærocarpus capfulifer. BULLIARD.

On Braham Moor near Leeds. [In a garden on Bucks, growing on a dead leaf. Mr. KNAPP.]
Nov. Dec.

** STEMLESS.

downy SPHÆ'RIA *tomento'sa*. Simple, clustered, snowy, downy. RELH. 1107.—Stemless, incorporated, somewhat downy. BOLT.

Bull. 492. 1.—*Bolt.* 125.—*Mich.* 54. ord. 37. 5.

Crust none. Spherules minute, globular, covered with a snowy down, sometimes confluent, marked with a few black minute dots.

On losing their down turning black, become indurated and permanent. *Flesh* black. RELH. *suppl.* ii. 31.—Fixed to the inner bark of dead branches, forcing its way through the outer bark. It is in clusters, each cluster about the size of a large mustard seed. BOLT.

S. obducta. BOLT.

Decayed wood in Madingley Plantations. RELH.—On fallen decaying branches of trees. BOLT.—Aug. Sept. RELH.—Feb. BOLT.

SPHÆ'RIA vir'idis. Simple; globular, green. Bark *green* granulated. Granules brown. BOLT.

Bolt. 121. 2.

About the size of a white mustard seed, green, when dry pale brown. BOLTON.

On small sticks and stems of plants when in decay.

SPHÆ'RIA sanguin'ea. Simple; egg-shaped, blood- *blood colour'd* coloured; perforated at the end. BOLT.

Bolt. 121. 1.—*Bull.* 487. 3.

Thickest at bottom; the size of a poppy seed, in clusters; opening at the top, blood red, shining, white within. BOLTON.

Hypoxylon Phœniceum. BULL. 171.

On rotten wood beside the spring of Elm Cragg Well, at Bell Bank near Bingley, Yorkshire. June.

SPHÆ'RIA mori. Simple; clustered, scarlet; very *scarlet* small. WIEG. *obs.* 45.

Bolt. 120. 1.—*Wieg. obs.* 2. 11.

Crust none at all. *Spherules* in heaps, but not confluent, globular, very small, bright scarlet. DICKS.—Narrowest at the base, orange colour when young; bright scarlet when full grown; black in decay. BOLTON.

On the decayed bark of trees.

SPHÆ'RIA greg'aria. Simple; in irregular clusters; *gregarious* of a red lead colour. *Crust* whitish, tender. WIEG. *obs.* 43.

Wieg. obs. 2. 10. a.

Crust thin, smooth, whitish. *Spherules* very minute, irregularly crowded, often in a stellated form, closely compacted; red. DICKS.

On the bark of trees; particularly the cherry. Feb. April.

SPHÆ'RIA fragifor'mis. Red, resembling a straw- *strawberry* berry. HALL. n. 2190. DICKS. 24.

CRYPTOGAMIA. Fungi.

Hall. enum. 2. 10, at p. 91, repr. in *hist.* 47. 10, at ii. p. 88.

When young red, when old black. DICKS.—Rough with granulations; substance hard, thick, hollow and black within. HALLER.
On rotten wood.

Sept

purple SPHÆ'RIA *Tremelloi'des*. Compound, solitary, sometimes on a stem; nearly globular, purple, somewhat jelly-like. WIEG. *obs.* 46.

Bull. 284.—*Wieg. obs.* 3. 1.—*Bolt.* 127. 1.—*Dill.* 18. 6.—*Mich.* 95. 3, cop. in *Gled.* 6. *Mucor.* f. 8. a.

This plant is not absolutely without a stem, but the stem is very short and nearly as thick as the top, entering into the substance of the bark on which it grows. In some specimens the top part is of a full vermilion, and the lower part of a yellowish colour. In other specimens this order of colour is reversed. It is common in this latter variety to find young shoots growing up close to the stems of the older plants, the heads of which have the full vermilion colour.

Tremella purpurea. LINN. HUDS. LIGHTF. — *Sph. miniata*. BOLT.

On pieces of half rotten sticks, plentiful.

Autumn, Winter, and Spring.

black SPHÆ'RIA *lycoperdoi'des*. Compound, convex, mostly solitary. Pith mealy, black. Rind tawny, friable. WIEG. *obs.* 47. n. 10. z.

Wieg. obs. 3. 2, a.

Parasitical, sitting, roundish, scattered, at first tawny, soft, succulent, when more advanced the bark falling, they become brown and indurated, at length opening, appearing quite full of a black compact powder. LINN. *synt. pl.* iv. 626. — Some globular, others oblong, somewhat flattened, solitary. LINN. *synt. nat.* III. 234.

Lycoperdon variolosum.

On the decayed bark of trees and on sticks.

Jan.—Dec.

leafy SPHÆ'RIA *riccioi'dea*. (BOLT.)—Leathery, branched, tawny, spreading; segments cloven.—

Bolt. 182.

From 1 to 2 inches diameter; tough, hard, leathery, deep tawny, tending to orange colour. White within. Surface roughish from the prominencies of the tubercles underneath. BOLTON.

On branches of willow and hazel when so decayed as to crush between the fingers.

Feb.

SPHÆ'-

S P H Æ ' R I A *mammo'sa*. Solitary, semi-globular, *semi-globular* olive-coloured. HALL. n. 2181.

Mich. 55. ord. 2. 1.

Though growing many together, they are never united. Mr. WOODWARD.

S. mammiiformis. RELH. n. 987.

On rotten wood.

Sept.

S P H Æ ' R I A *rugo'sa*. Stemless, clustered, globular, *rough* ash-coloured, wrinkled, large. BOLT.

Bolt. 123. 2.

From $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, rough, hard and dry like wood. BOLTON.

Southowram near Halifax, on the bark of dead and fallen elm branches.

S P H Æ ' R I A *max'ima*. Large, thick, black, marked *pustulous* above with pustules. WEB. n. 301.—HALLER 2192.—DICKS. 23.

Bull. 487. 1.—Bolt. 181.—Mich. 54. ord. 2. 1.

Pustules very obvious. RELH.—Grey black, inflated, friable; surface uneven; cells distinct; from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch diameter. BULL.

On rotten wood.

S P H Æ ' R I A *fraxin'ea*. Roundish, convex, black, *ash* dotted. HALL. n. 2192.—Nearly fitting, pustular. RELH. n. 1059.

Bolt. 180.—Schæff. 329.—Bull. 487. 2?—(Mich. 54. ord. 2. 1, is *Sphæria maxima*.)

Convex, smooth without; substance within consisting of a number of concentric layers composed of minute tubes or threads pointing from the center. Substance hard; covered with a thin bark of a brownish black, somewhat wrinkled and rather glossy, grey within. RAY.—Very irregular in shape; from $\frac{1}{2}$ to more than 1 inch diameter. Pustules scarcely visible to the naked eye. RELH. *suppl.* i. 34.—This which is very common, differs from the Sph. maxima in being more woody and shewing concentric circles when cut. It is generally more completely sessile than it is represented in the figures.

Lycoperdon fraxineum. Hudf.—Sph. concentrica. Bolt.

On ash trees when rotten or in a decaying state, and observed on no other tree. RAY.

knobbed SPHÆ'RIA *tuberculo'sa*. (LIGHTF.)—Black, convex; flesh black. HALL. n. 2187.—Stemless, incorporated, tubercled, brown. Spherules of the same colour. BOLT.

Bolt. 123. 1.—Wieg. obs. 3. 2. b. c.—(Hall. 47. 9, at iii. p. 88, the right hand figure is a good representation of it, but is *S. depressa*.—Mich. 54. ord. 2. 2, must be a different species as the plants are surely concave.—Dill. 18. 7, is *S. depressa*.)

About 1-10th of an inch over. It always grows on the inner bark of the branch, forcing its way through the outer bark. BOLT.

On dried sticks, decayed bark of trees, LIGHTF.—and rotten wood. DILL.—Most commonly on hazel. BOLT. Sept.—Apr.

shining SPHÆ'RIA *nit'ida*. Simple, mostly solitary, nearly hidden, shining, black, crust sheath-like, cracked. WIEG. DICKS.

Wieg. obs. 2. 14.

Crust pale brown or yellowish, cracked, inclosing the spherules to half their thickness. WIEG. obs. p. 45.

On the bark of trees.

depressed SPHÆ'RIA *depressa*. Stemless, incorporated, black, shining. BOLT.

Bull. 432. 2.—Bolt. 122. 1.—Dill. 18. 7.—Wieg. obs. 3. 3.—Hall. enum. 2. 9, at p. 91, hist. 47. 9, at iii. p. 88.—Mich. 54. ord. 2. 2?

Intensely black, shining, hard, granulated, white within. BOLT.

On the outer rind of decaying branches of trees. BOLT.

clustered SPHÆ'RIA *aggrega'ta*. (RELH.)—Aggregated, parasitical, spherical, mouth entire. LIGHTF. 1069.—Huds. 653.—Simple, globular, black, shining. BOLT.

Bolt. 122. 2.—Lightf. 31, lowermost figure, at p. 962.—(Mich. 54. ord. 37. 4, has a crust extending beyond the spherules.)

Small, black, about the size of and resembling the head of a black hair pin. RELH. suppl. i. 35.—Very much resembling fine gunpowder. BOLT.—Perfectly globular, the size of small pins heads; grows in thick clusters; principally on decayed stumps of trees. Mr. WOODWARD.

Sph. Bombardica. BOLT.—Lycoperdon nigrum. LIGHTF.—Lyc. aggregatum. HUDS.

Trunks of rotten trees and rotten wood.

Oct.—May.

furrowed SPHÆ'RIA *fulca'ta*. Stemless, incorporated, oblong, furrowed. BOLT.

Bolt. 124.—*Mich.* 54. *ord.* 37. 2.—*Hoffm.* 3. 2. *e.*

About the size of a flea, blackish, oblong, with a deep furrow extending from end to end. *BOLTON.*

Lichen scriptus. β pulicaris. *LIGHTF.* 801.

On decayed branches of ash trees. *BOLT.*—[Norfolk and Suffolk. *Mr. WOODWARD.*]

SPHÆ'RIA byssa'cea. Simple, solitary, very small, *byssus* black. Crust snowy white, powdery. *WIEG. DICKS.*

Wieg. obs. 2. 9.

Crust white, powdery, spreading. *WIEG.* 43.

On the bark of oak trees.

SPHÆ'RIA bras'sica. Of various shapes, black, cabbage flesh white. *DICKS.* 23.

Bolt. 119. 2.

Crust none. *Spherules* simple, often confluent, of various shapes and sizes, from that of mustard seed to that of a pea. *DICKS.*

On rotten leaves of cabbage, vulgarly supposed to be cabbage seed, and on rotten roots of parsneps; common.

T R I C H I A.

Ess. CHAR. In clusters. Mostly fixed to a membranaceous base. Capsules globular or oblong: Seeds escaping from its whole surface through openings made by the separation of the fibres.

Obs. Capsule globular, oblong turban-shaped, or nearly cylindrical, transparent, in colour and tenacity like cream. Opaque when older, columnar, filled with woolly fibres, its coat composed of a fibrous texture, at first compact, opening gradually, and then resembling a lock of wool, the seeds escaping through every part of the surface. This includes also the *Sphærocarpus* of *M. Bulliard*, which seems to differ only in consistence.

* With a *STEM.*

TRIC'HIA nu'da. Rusty brown. Stem hair-like. *naked* Capsule egg-shaped, changing to cylindrical, perforated by the stem.—

Bull. 477. 1.—*Mich.* 94. 1. 2, *Clathroidastrum*; *cop. in Gled.* 4,

Stemionitis. f. 2. 5. 6. 8.—*Bolt.* 93. 1.—*Batsch.* 176.—*Fl. dan.*

216.—*Schæff.* 297.

Stem black, shining, extending through the capsule up to its top. Capsule white, egg-shaped; rusty brown with age, and nearly cylindrical, the fibres of the coat opening so as to suffer the seeds to escape between them. It varies in a longer or a shorter stem. The whole plant is from 3 to 5 lines high. BULL.

Clathrus nudus. LINN.

On rotten wood, particularly in hollow stumps. May—Oct.

VAR. 1. Stem broadest at the base. Capsule always cylindrical.

Bull. 477. 2.

Rusty brown. Capsule perforated by the stem. BULLIARD.

On the stump of a fir, and on a decayed leaf of fir, in Coomb Grove near Bath. Mr. STACKHOUSE.

purple TRIC'HIA *denuda'ta*. Stem very short. Capsule long egg-shaped, not perforated by the stem; cupped at the base.—

Bull. 502. 1.—Mich. 94. 1, *Clathroides*.—Bolt. 93. 2.—Jacq. misc.

i. 6.—Batsch. 177.—Schæff. 297.—Hall. enum. 1. 6, at p. 21, repr. in hist. 48. 6, at ii. p. 116. (Not Schæff. 297.)

STEM brown, very slender, about 1-20th of an inch high.

Woolly top 3-20ths of an inch high; colour of red brick, composed of woolly fibres, set with small knobs, throwing out dust when touched.

Dust colour of vermillion; when very highly magnified appearing composed of egg-shaped substances.

—The stem supports the woolly substance, which resembles a roll of carded wool, but does not extend through it. Wholly red, except the apex, which is brownish. Capsule at first globular, oblong when older. JACQUIN.—Stem hardly a line in length, not continued through the capsule. Capsule scarlet or tawny red, egg-shaped when young, nearly cylindrical when old, its membrane at the base remaining entire. BOLTON.—The capsules in Mr. Bolton's figures not so long, nor does the colour in the young state agree with our specimens. Description of Batsch at p. 265, very good.

Clathrus denudatus. LINN.

On rotten wood in damp places. Near Bungay. Mr. WOODW.

—On the stump of a tree. Rookery, Edgbaston. June—Oct.

reddish TRIC'HIA *ru'fa*. Stem short. Capsule globular, cut round; red.—

Bull. 368. 1.—Schmid. 24. i. to viii.

The place of this plant in a system is not easily determined. The capsule opens horizontally about its middle, like a snuff box, or like the S. Veff. of the *Anagallis*; the upper and under lid remaining entire;

entire; therefore it does not agree with the genus *Lycoperdon* which opens only at the top, nor does it well accord with the *Trichia*, the capsules of which stretch so as to let the seeds escape between the fibres, though in some species the lower part suffers no such separation of its fibres, more nearly resembling the plant in question.

Lycoperdon rufum. DICKS. 25. 1.
On rotten wood.

July—Aug.

TRIC'HIA ful'va. Stem very short, smooth. Cap- brown
sule globular, wool tawny.—

Bolt. 93. 3.—*Bull.* 387. 2.—*Hall. enum.* 1. 4, at p. 21, repr. in
hist. 48. 4, at ii. p. 116.

Stem white. Capsule varying in colour from scarlet to yellow
brown; when its texture opens, the lower part remains entire on
the stem. The whole plant not 1-10th of an inch in height.

Sphærocarpus Trichioides. BULL.—*Clathrus fulvus*. HUDS.—
Mucor fulvus. LINN.

On rotten wood. [About Bungay. Mr. WOODWARD.]

May—Oct.

TRIC'HIA fla'va. Capsule on a stem, whitish. yellow
Wool yellow.—

Bull. 407. 2.—*Bolt.* 93. 4.—*Hall. enum.* 1. 3 and 3, at p. 21;
repr. in hist. 48. iii. at p. 116.

This has been supposed to be the *Mucor sphærocephalus* of LINN.
which it may be, as Mr. Bolton remarks that the capsule turns black
after the discharge of the seeds.

Clathrus flavus. HUDS. 631.

On rotten wood.

June—Oct.

TRIC'HIA oliva'cea. Stem and capsule woolly, olive
olive-coloured. BOLT.

Bolt. 94. 2.

On putrid weeds when thrown on a heap to rot for manure.

TRIC'HIA furfura'cea. Stem thread-shaped, green. branny
Capsule globular, mealy.—

Batsch. 178.

Clathrus virescens. HUDS. 632.—*Mucor furfuraceus*. LINN.

On the ground in the shade on the sides of roads and ditches, and
on rotten wood.

May—Oct.

TRIC'HIA

CRYPTOGAMIA. Fungi.

grey **TRICHIA** *globulifera*. Stem thickest downwards. Capsule globular, ash-coloured.—

Bull. 484. 3.—Bolt. 94. 1.

Clathrus sphærocephalus, BOLTON.—*Sphærocarp. globuliferus*, BULLIARD.

In the cracks of old dry wood, at all seasons. BOLTON.

black **TRICHIA** *recutita*. Capsule on a stem, globular. Wool black.

Batsch. 232.—Bull. 417. 3?

Head roundish, after bursting the lower half remains white and membranaceous, and upon it rests an egg-shaped mass of a cotton-like texture. LINN. fuc. n. 1264.—The figures of M. Bulliard are rather egg-shaped than globular, and taper downwards so as to form a stem, but in the plants, now before me, the stem is thinnest upwards, and there is a hollow dot at the top of each unopened head. In an elegant drawing, by Mr. Knapp, which accompanied his specimens, the stem is equally distinct as in the figures of Batsch.

Cl. ater. Hudf. 631.—Cl. recutitus. LINN.—*Mucor cancellatus*, BATSCH.

On rotten wood.

[In a wood in Bucks,

May—Oct,

Nov. Dec, Mr. KNAPP.]

*** STEM-LESS,

cylindrical **TRICHIA** *fragiformis*. Stemless; in clusters. Capsules cylindrical, tawny red.—

Batsch. 172.

About 1-8th of an inch high, and $\frac{1}{2}$ as much in diameter, sitting in clusters upon a common membranaceous base of the same colour; opening at the top and discharging its seeds, which, together with the fibres which connect them, are of a deep tawny saffron colour. BATSCH.—Rose red when young, BULLIARD.

Lycoperdon vesparium. BATSCH.—*Sphærocarpus fragiformis* BULLIARD.

Mr. Relhan informs me that he has found this plant in Madingley Wood, and Wood Ditton, in Cambridgeshire.

On rotten wood, and decaying trunks of trees. Spring. [On the stump of an hazle, growing in considerable quantities; Powick near Worcester. Mr. STACKHOUSE.]

turbinated **TRICHIA** *turbinata*. Stemless; turban-shaped. Wool yellowish. (Huds. 632. 8.)

Mich.

Mich. 94. 2, *Clathroides*, cop. in Gled. 4. *Stemonit.* f. 1, 3, 7, and 4.—Hall. enum. 1. 7, at p. 21, repr. in hist. 48. 7, at iii. p. 116.—Bolt. 94. 3.—Fl. dan. 655. 1.—Scop. ann. iv. 2. 11. —Batsch 173.—Bull. 417. 4?

Lycoperdon luteum. JACQ. in syst. veg. p. 982. RELH. n. 1103.
—*L. epiphyllum*, LIGHTF. 1069.
On rotten wood. [Near Bungay, Mr. WOODWARD.]

August—April.

1334. M U ' C O R. Mould.

FUNGUS consisting of vesicles on fruit-stalks, containing a number of *Seeds* fixed to cross-shaped *Receptacles*.
Ess. CHAR. Seeds naked, or in transparent Capsules at the end of the stem,

M U ' C O R *Muce'do*. Stem undivided, supporting a cotton single globular Capsule.—

Bull. 480. 2.—Fl. dan. 467. 4.—Bolt. 132. 1.—Mich. 95. 1, *Mucor*, cop. in Gled. 6, *Mucor* f. 3. a. f. f. 2. a.—Sterb. 31, still more highly magnified.

On putrid broad planks and other substances. Jan.—Dec.

M U ' C O R *glau'cus*. Stem supporting a head. Heads *greenish* roundish, incorporated.—

Fl. dan. 777. 2.—Mich. 91. 1. *Aspergillus*; f. D. cop. in Gled. 1, *Byssus* 1. row 3. f. 4.—Fl. dan. 840. 3, may be the same plant.

On rotten apples, melons, and such like substances. Jan.—Dec.

M U ' C O R *ro'ridus*. Stem hair-like. Head spherical, *dewy* like a dew-drop, with a black dot at the top. RAY syn.

13. n. 13.

Bull. 480. 1.—Bolt. 132. 4.—Fluk. 116. 7, cop. in Pet. gaz. 105. 14.

Agaricus tenellus, HUDS. 621, according to Relhan.

On horse dung.

Aug.—Sept.

M U ' C O R *urceola'tus*. Soon fading. Stem above *pitcher-shaped* bellying, transparent, like a dew drop. Head roundish, elastic, black. DICKS. 25. RELH. n. 1062.

Bolt. 133. 1.—Dickf. 3. 6,

Stem

CRYPTOGAMIA. Fungi.

Stem yellowish, changing to a pellucid watery blue, bellying upwards. *Head* spherical but depressed, black, shining, when ripe thrown off with an elastic force. DICKSON. — This plant, having the property of ejecting the seed-vessel in the same manner that the *Lycoperdon Carpopobolus* does, and the head, which is blackish grey, appearing to be replete with seeds like that, should the former be made a distinct genus, this might associate with it. The structure of it is clearly a membrane surrounding and inclosing the capsule in form of a round ball at the top of the stem, which, when ripe, is exploded to some distance. This membrane is not fugacious like the *Mucors*; a specimen, now 6 or 7 years old, still shews the remains of the collapsed membrane, though the capsules are fallen into powder and gone. *Stem*, after the explosion of the head loses its bellying appearance, becomes cylindrical and crooked; in which state it will remain for years, if kept in a dry place. Mr. WOODWARD.

On horse dung; to be found early in a morning.

Aug.

black MU'COR *Em'bolus*. Stem black, bristle-shaped, with brown woolly hair. —

Hall. enum. 1. 1, at p. 21, repr. in hist. 48. 1, at p. 116.

Rotten wood.

Jan.—Dec.

fingered MU'COR *cespitosus*. Stem branching. Fructifications finger-like. —

Bull. 504. 11. — Bolt. 132. 2. — Mich. 91. 4, *Aspergillus*; cop. in Gled. 1. *Byffus* row 3. f. 2.

On rotten vegetables in woods.

radiating MU'COR *crusta'ceus*. Stem undivided. Fructifications radiating, terminating. —

VAR. 1. Rays of fructifications few.

Bull. 504. 11. — Mich. 91. 3, *Aspergillus*.

Height 1 to 2 10ths of an inch. Fructifications beaded, issuing in rows like rays from the top of the stem.

VAR. 2. Rays of fructifications crowded.

Bull. 504. 10. — Mich. 91. 2, *Aspergillus*.

On rotten vegetables, and corrupted food, in moist shady places.

Jan.—Dec.

grape MU'COR *bo'trytis*. Stem bearing Fructifications in bunches. (BOLT.)

Bolt.

Bolt. 132. 3.—Bull. 504. 7.—Fl. dan. 777. 1.—Mich. 91. 4.
Botrytis, imit. in *Gled.* 1. *Byffus*, row 3. f. 1.

Height from 1 to 2-10ths of an inch. Fructifications like bunches of grapes.

On a decaying plant of *Boletus verficolor*.

MU'COR *chrysofermus*. (BULL.)—Extremely fine, golden yellow, consisting of stems supporting yellow seeds, singly or in clusters.

Bull. 476. 4, and 504. 1.

Covering the whole surface of the plants on which they grow, and staining the fingers yellow.

I have repeatedly found it, but always upon *Boleti* which grew in shady places; generally on the *Boletus pellucidus*. Aug.—Sept.

It has the same property of repelling wet as has been observed in the seeds of the *Lycopodium*. A specimen now before me is not wetted, though it has been immersed in a fluid for a year.

MU'COR *argenteus*. Spreading, white, consisting of white extremely fine woolly filaments supporting seeds.—

This appears upon some of the smaller stipitated *Boleti*, covering the whole of the pileus and upper part of the stem. It is more durable than the *M. Chrysofermus*.

Under the large clump of beeches, Edgbaston Park. Aug. Sept.

The *Boleti* on which either this or the *M. chrysofermus* are found, are always in a very tender half rotten state.

MU'COR *Lichenoides*. Permanent. Stem awl-grey-headed shaped; black. Capsule lentil-shaped, ash-coloured.—

Dill. 14. 3.—Hall. hist. 48. 2, at iii. p. 116, is also referred to by Mr. Hudson, but that is a *Trichia*.

The *basis* black, pitchy, elevated. Head hemispherical above, underneath plano-concave, with a round edge, resembling the crab's eyes of the apothecaries, ash-coloured, of the size of poppy seed. LINN. fuc. n. 1287.—When the fructification of this plant is a little better understood it must be removed from its present situation, the permanent woody texture being so unlike the tender and fugacious *Mucors*. I was favoured with specimens by Mr. Knapp, who remarks that he has never seen it grey, but always black.

Clathrus cinereus. HUDS. 631.

On rotten wood,

Jan.—Dec.

MU'COR

C R Y P T O G A M I A. Fungi.

yellowish M U ' C O R *lepro'sus*. Bristle-shaped. Seeds at the
root.—

Mich. 91. 5, Aspergillus.

Caverns and arched cellars.

Sept.—April.

sessile M U ' C O R *Erysiphe*. White. Heads brown, sit-
ting.—

On decaying leaves,

Aug. Sept,

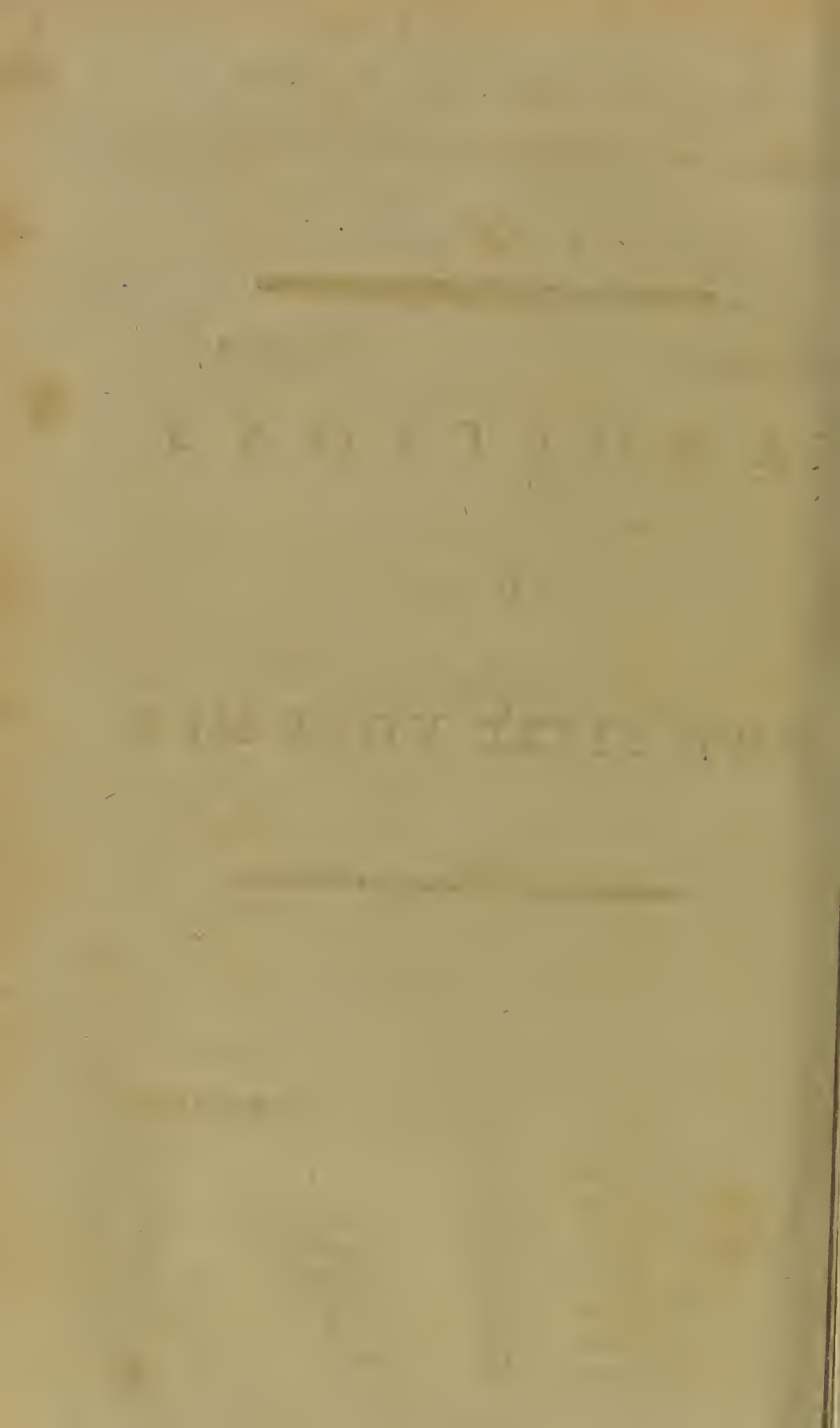
A D D I,

A D D I T I O N S

TO THE

TWO FIRST VOLUMES.

ADDITIONS,



A D D I T I O N S, &c.

- Page 12. *VERONICA anagallis*. Fl. dan. 903.—Ger. &c.
 — 13. *VERONICA montana*. After Curt. add, Col. ecphr. 288,
 cop. in Pet. 51. 4, and Park. 589. 3.
 Dele Pet. 51. 4.
 — 15. *VERONICA triphyllos*. J. B. iii. 368. 1, a young specimen.
 Mr. WOODWARD.
 Stem sometimes simple. Branches from the bottom of
 the stem or near it, and rising to the same height as the
 stem. Leaflets in threes and fives. Root-leaves simple,
 rarely found, well represented in J. B.'s figure. Mr.
 WOODWARD.
 — 15. *VERONICA verna*. Leaves in one specimen gathered
 near Bury, spear-shaped, toothed, 7 lines long, though
 the whole plant only 2 inches high. Mr. WOODWARD.
 —Fl. dan. Leaves never so acutely pointed, nor have I seen
 them so thinly set on the stem. Capsules represented as lopped
 instead of deeply notched. Mr. WOODWARD.
 — 34. *NARCISSUS poeticus*. Honey-cup very short, yellow.
 Petals large, whitish. Ray.
 Primrose. Peerless.
 — 50. *SCIRPUS maritimus* : Fl. dan. 937.—Ger. &c.
 — 62. *PHLEUM arenarium*. Fl. dan. 915.—Park. &c.
 — 72. *AGROSTIS stolonifera, capillaris sylv. alba pumila*, LIGHTF.
 probably Hudf. right in making these all varieties. Mr.
 WOODWARD.
 — 79. *AIRA canescens*. Panicle scarcely ever coming out of
 the sheath. No plant alters its appearance more com-
 pletely when cultivated than this, growing much larger,
 quite upright, and losing entirely its grey colour. Mr.
 WOODWARD.
 — 85. *POA aquatica*. Fl. dan. 920.—H. ox. &c.
 — 86. *POA trivialis*. Line 15, erase panicle and the rest of the
 line and all the next. Mr. WOODWARD.
 — 37. *POA pratensis*. Mr. Curtis's specific character of this
 and *P. trivialis* invariably true. Mr. C. refers to the
 same synonyms of Ray, &c. under each, because they
 had confounded the 2 species. Mr. WOODWARD.

ADDITIONS TO THE

Page 88. *POA maritima*. If the *Poa retroflexa* of Curtis is not a variety of *P. maritima*, it is very nearly allied to it. Mr. WOODWARD.

Very common at Yarmouth and on the coast. Mr. WOODWARD.

— 102. *FESTUCA pinnata* α HUDS.—My specimens slightly pubescent. *Spikes* sometimes on very short fruit-stalks. *Empal.* valves hairy at the edge, marked with 7 strong ribs. *Bloss.* outer valves hairy at the edge; and marked with 5 strong ribs. Mr. WOODWARD.

FESTUCA pinnata β HUDS.—My specimens slightly pubescent. *Spikes* absolutely fitting. *Empal.* and *Bloss.* as in α , but the hairs and ribs stronger. Mr. WOODWARD.

— 118. *ARUNDO arenaria*. *Fl. dan.* 917.—Hist. ox. &c.

— 123. *ROTTBOLLIA incurvata*. *Fl. dan.* 938.—H. ox. &c.

— 128. *TRITICUM junceum*. *Fl. dan.* 916.—C. B. &c.

— 147. *SANGUISORBA officinalis*. [Extremely common in limestone pastures in the North. On the East side of the island I have not met with it farther to the South-East than Ripton, Huntingdonshire. Mr. WOODWARD.]

— 157. *GALIAM Aparine*. (References add.) Walc.

— 174. *POTAMOGETON crispum*. After Curt. insert *Fl. dan.* 927.

— 189. *LITHOSPERMUM officinale*. [Common in woods. Mr. WOODWARD.]

— 222. *LONICERA Periclymenum*. After Curt. insert *Fl. dan.* 908.

— 225. *VERBASCUM Lychnitis* α and β . Mr. Curtis, who cultivated them some years in his garden, declared he could not find any specific difference. I am apt to think the *Verbascums* run easily into hybrids, some plants having flowered near my garden this year which seem to be between *V. nigrum* and *pulverulentum*, and this circumstance might occasion the difficulty Mr. C. found in pointing out specific differences. Our *pulverulentum* varies extremely, and in some shady situations this wet summer had lost almost all its powdery appearance. Perhaps *oblong wedge-shaped* may be proper for the root-leaves, but they vary from that to oval spear-shaped and spear-shaped, and sometimes have the margins waved, though always scolloped, and always with short leaf-stalks. The *middle leaves* fitting; sometimes with a tendency to embrace the stem, which makes them heart-shaped

shaped at the base. They are oval spear-shaped, or rather shortly pointed. The upper narrow and pointed. I believe it will be best on Curtis's authority to make them varieties. Mr. WOODWARD.

- Page 257. *BETA maritima*. [Yarmouth, and at Wells on the Norfolk Coast. Mr. WOODWARD.]
- 272. *CAUCALIS Anthriscus*. After Jacq. insert *Fl. dan.* 919.
- 281. *SELINUM palustre*. *H. ox.* leaflets too large and too few, and the stem smooth.—*Lob.* leaves well represented, but not the bundle, but it has evidently numerous stems; though the root is with many clefts, and the stem scored.—*Bauh. pr.* the best I have seen were the root not single, answering in every other particular. Mr. WOODWARD.
- 291. *SIUM latifolium*. [In the pool in Nottingham Park. Dr. ARNOLD.]
- 306. *TUSSILAGO hybrida*. [At Dishley Mill, Leicester-shire. Dr. ARNOLD.]
- 307. *CHÆROPHYLLUM temulum*. After Jacq. insert *Fl. dan.* 918.
- 314. *PIMPINELLA magna*. [In Holling Hall Wood; Leicestershire. Dr. ARNOLD.]
- 341. *NARCISSUS poeticus*. In some closes at Bellow Hill, near Whitechurch, Cheshire. Mr. VERNON in *Blackst.* 58.—In several places near Harefield. *Blackst. ib.*
- 366. *BERBERIS vulgaris*. *Fl. dan.* 904.—*Mill*, &c.
Par. 3, line 10, after *St.* add, If a bee in pursuit of honey touch the threads the tips approach the summit and discharge their dust with an explosion. The same may be done with a pin. *Baal hortul. monsp. in Linn. suec. n.* 316.
- 376. *RUMEX Acetofella*. References. *Curt. v.* 52.—*Blackw. &c.*
- 390. *EPILOBIUM montanum*. After *Curt.* insert *Fl. dan.* 922.
- 413. *POLYGONUM aviculare*. The stubbles in Sweden are empurpled with this plant. *LINN.*
- 433. *SAXIFRAGA autumnalis*. *Cord. a Schmid.* the coloured plate, 4.—*Clus. &c.*
- 436. *SCLERANTHUS annuus*. After *Lonic. i.* 169. 1.—insert *Dod.* 115. 1, repr. in *Ger. &c.*
- 445. *CUCUBALUS Behen*. *Fl. dan.* 914.—*J. B. &c.*
- 460. *ARENARIA verna* of *Huds.* Derbyshire, &c. plant is *A. laricifolia* of *Herb. Linn.* but as I have never seen what *Huds.* calls *laricifolia*. I don't know what species that is. Mr. WOODWARD.

- Page 478. *CERASTIUM alpinum*. *Lightf.* 10. 2, at p. 242, as evident from the figure of the capsule. *RETZ. obs.* iii. 32. n. 54.
- 509. *PRUNUS spinosa*. *Fl. dan.* 926.—*Sheldr. &c.*
- 532. *POTENTILLA argentea*. *Munting.* Leaves 7, 5, and 3, well expressed, with the terminal without lateral ferratures, the blossom and empalement in every flower with 4 clefts. A very good figure, except that the plant is represented upright instead of trailing. *Mr. Woodw.*
- 552. *PAPAVER dubium*. After *Curt. insert Fl. dan.* 902.
- 589. *AJUGA reptans*. After *Curt. add, Fl. dan.* 925.
- 569. *THALICTRUM flavum*. *Fl. dan.* 939.—*Morif. &c.*
- 571. *RANUNCULUS Flammula*. References (add) *Walc.* 5.
- 603. *GLECHOMA hederacea* γ Blossoms flesh coloured. *BLACKST.* 33.
- Near Eynsham Abbey, Oxfordshire. *DILL. in Blackst.* Apr.
- 608. *GALEOPSIS Tetrahit* δ After *Riv. add, Fl. dan.* 929.
- 620. *CLINOPODIUM vulgare*. *Fl. dan.* 903.—*Cluf. &c.*
- 631. *PRUNELLA vulgaris*. After *Ludw. insert Fl. dan.* 910.
- 638. *MELAMPYRUM arvense*. *Fl. dan.* 911.—*Riv. &c.*
- 646. *ANTIRRHINUM spurium*. After *Curt. insert Fl. dan.* 913.
- 650. *ANTIRRHINUM Orontium*. After *Curt. insert Fl. dan.* 941.
- 659. Line 27, read thus:—upper lip roundish, cloven; the lower lip broad, cloven in 3, the middle segment largest, and with a
- 671. *LEPIDIUM didymum*. Not *L. didymum* of *Linn.* *Mr. WOODWARD.*
- 692. *SISYMBRIUM terrestre*. After *Curt. insert Fl. dan.* 931.
- 696. *ERYSIMUM Alliaria*. After *Curt. insert Fl. dan.* 935.
- 697. *ERYSIMUM cheiranthoides*. After *Jacq. insert Fl. dan.* 923, from a very luxuriant specimen.
- 700. *HESPERIS inodora*. After *Jacq. insert Fl. dan.* 924, and after *Rupp. insert Fl. dan.* 921.
- 702. *ARABIS stricta*. After *Crantz (add) Scop.* 40, at ii. p. 27.
- Arabis arenosa*. *Scop. n.* 837.
- 732. *GERANIUM dissectum*. *Fl. dan.* 936.—*Vaill. &c.*
- 750. *MALVA moschata*. After *Curt. insert Fl. dan.* 905.

- Page 751. *FUMARIA officinalis*. After Curt. add, *Fl. dan.* 940.
 — 790. *TRIFOLIUM Melilotus officinalis*. *Fl. dan.* 934.—
 Gmel. &c.
 — 827. *TRAGOPOGON pratense*. After *Ludw.* insert
Fl. dan. 906.
 — 849. *HIERACIUM paludosum*. *Fl. dan.* 928.—Ger. &c.
 — 862. *CICHORIUM Intybus*. After Curt. insert *Fl.*
dan. 907.
 — 879. *ONOPORDUM Acanthium*. *Fl. dan.* 909.—
 Fuchf. &c.
 — 911. *SENECIO Jacobæa*. *Fl. dan.* 944.—Matth. &c.
 — 976. *ORCHIS maculata*. *Fl. dan.* 933.—Hall. &c.
 — 983. *OPHRYS Nidus avis*. After *Fl. dan.* (add) *Tourn.*
 250. 3, root and parts of fructification.
 — 1015. *CHARA vulgaris*. *Hedw. theor.* 32 and 33. C. B. &c.
 — 1022. *TYPHA angustifolia*. After *Fl. dan.* (add) *Tourn.* 301.
 — 1023. *SPARGANIUM erectum*. References — after
H. ox. (add) *Tourn.* 302, a branch.
 — 1024. *SPARGANIUM simplex*. *Huds.* After Curt.
 insert *Fl. dan.* 932.

CVIII

A D D I T I O N S

T O T H E

T H I R D V O L U M E .

213

ADDITIONS,

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A D D I T I O N S, &c.

- Page 52. After line 6 (add) *Leaves* spear-shaped, with winged clefts, from 4 to 5 inches long, $\frac{1}{2}$ inch broad, leaf-stalk naked, $\frac{3}{4}$ of the length of the leaf. Segments alternate, very entire, semi-oval, green above, thickly covered with brown scales underneath. Mr. Gough.
- 52. After line 9, (add) On old walls cemented with mortar containing a portion of clay, and in a similar soil in the fissures of limestone, on the highest part of Kendall fell. Mr. Gough.
- 64. After line 8, (add) *Jacq. misc. ii. 7.*
- 68. At the bottom, after, alternate. DILL. (add) Fruit-stalk generally with 2 equal spikes, frequently with 1, and sometimes with 3, which are unequal. Mr. Gough.
- 69. After line 7, (add) The Seeds flash when thrown into a flame, and it is said are used in Theatres to imitate lightning. They are with difficulty made wet, and if scattered upon a basin of water you may dip your hand to the bottom of the basin without wetting it.
- 75. After line 21, add, DILL.
- 97. In the margin, instead of *heath*, read *crowded*.
- 103. In the margin, instead of *dwarf*, read, *little*.
- 106. In the margin, line 3, for *starry*, read, *stellated*.
- 141. Line 1, dele *Jungermannia*.
- 143. Line 1, for MUSCI, write, ALGÆ.
- 147. Line 1, for MUSCI, write, ALGÆ.
- 151. Line 1, for MUSCI, write, ALGÆ.
- 157. TARGIONIA *sphaerocarpus*. Very common on our clover fields in Autumn, on sandy loams along with *Riccia glauca*, the first year of the clover. Mr. Woodw.
- 165. In the margin, for *brown*, write, *Byssus*.
- 165. In the margin, for *bluish*, write, *blue and black*.
Line 27, before *Willd. 7. 20*, insert, *not*.
- 168. In the margin, for *wall*, write *lentil*.
- 175. In the margin, for *yellow*, write *yellowish*.

- Page 177. In the margin, for *white*, write, *cream-coloured*.
 — 177. In the margin, for *bluish*, write, *ash-coloured*.
 — 179. In the margin, for *pale*, write *pallid*.
 — 201. In the margin, for *fringed*, write, *Tremella*.
 — 207. Line 31, for *Belt*. 131. 6, read, *Belt*. 131. 6.
 — 228. Line 2, before *Mich.* (insert) *Bull*. 272.
 — 239. *FUCUS tamariscifolius*. Major Veiley desires, that what stands there in his name may be cancelled, and the following description substituted in its place.

The base destitute of fibres and flat on the under surface, which by means of a gluten peculiar to sea plants, is strongly attached to the submarine rocks. It throws out 3 or 4 tough cylindrical stems, of the size of a quill; abounding with many knotty shoots, some are simple, not more than an inch in length, with very short leaves closely set into the stem; others are more lengthened and terminate with thick clusters of imbricated branches similar to themselves. Not unfrequently linear leaves may be observed, extending to an inch or more, and producing others which terminate in a forked direction. The plant is much branched, from 4 to 6 or 7 inches in height, and more in width, the smaller branches are numerous, and proceed indiscriminately from the principal stems, and are nearly tiled, at least towards the summits with short awl-shaped leaves; many of these are swollen at their base into round vesicles, and these small protuberances appear sometimes bare on the branches, as if the summits of the leaves had fallen off. Some of the upper branches have a remarkable appearance, somewhat resembling the small shields on some Lichens, which have hollow contracted discs and smooth prominent margins. This *Fucus* is found on submarine rocks at very low water, and is readily discovered by the bright glaucous tips which are reflected from it. It dries black, but if well preserved will retain on its upper branches, a mixture of muddy green colour, from whence those beautiful tints originate in its natural state.

- 246. *FUCUS ciliatus*. In the references, after *Gmel. fuc.* 21. 2, erase all to — *Tourn.*
 — 254. Line the last, *dele* and read *Pl*. 18.

FUCUS defractus. Read *ULVA defracta*. (Pl. 18.)
 The plant which I had named *Fucus defractus*, I think upon more mature deliberation is more properly an *Ulva*, as from its viscid elastic texture, and the tubercu-
 lated

lated appearances on every part, it should seem, according to the present imperfect definitions of these different genera, to belong to the genus ULVA. It is moreover necessary to remark, that although I frequently found it in the month of June, 1790, I have not been able to find it since, and possibly from not being upon the coast till later in the year; which circumstance prevented me from meeting with the *Fucus elminthoides* last Sept. there not being the smallest appearance of it at that late season. Major VELLE.

— 280. After the word plant in the sixth line, erase * and place †. Do the same to the note at the bottom of the same page.

— 284. After the Eff. Char. add,
§ 1. SOLID and DECURRENT.

(To follow Ag. integer, page 317.)

AGA'RICUS *punicus*. Gills white, 4 in a set; *light-red*
Pileus pinky, convex. Stem white.—

GILLS fixed, white, rather numerous, 4 in a set.

PILEUS convex, dull pinky red, clothy, sometimes a little bossed;
nearly flat when fully expanded, $\frac{1}{2}$ to $\frac{3}{4}$ of an inch over.

STEM solid, white, often crooked, about 1 inch high, and thick as a
crow quill.

Grows plats, adjoining to the house of Thomas Pearson, Esq. at
Tettenhall, Staffordshire. 28th August, 1792.

Page 333. Line 4, after 364. A. (add) see our Pl. 19.

(To follow Ag. partitus, page 357.)

AGA'RICUS *octogonus*. Gills pale brown, 4 in a *octagon*
set, but some in pairs and much broader. Pileus brown,
convex, octagonal.—

GILLS fixed, 4 in a set, but irregular, pale watery brown, white at
the edges. Besides the above, there are 8 pair of large Gills,
thrice as broad as the common large ones, whose edges approach
and seem united in pairs, but as their attachment to the pileus
is at some distance from each other, and the lower edges incline
so as to come in contact, if not to grow to each other, there is
necessarily a considerable cavity included between them. This
cavity is sometimes empty, but sometimes incloses a Gill of the
common size. The external appearance of these pairs of large
Gills is not unlike a large seed of an orange.

PILEUS pale watery brown, convex, $\frac{5}{8}$ ths of an inch over, the edge
formed into as many projecting angles as there are pairs of the
large Gills described above.

STEM

STEM watery brown, with a small hollow, $1\frac{1}{2}$ inch high, thinner than a crow quill.

Edgbaston, by the little Pool dam.

24th August.

AGARICUS *fusco-flavus*. (See page 359.)

VAR. 1. Pileus regularly convex. Stem short, thin, with a slender hollow.

GILLS fixed, ochrey brown, 4 in a set, moderately numerous.

PILEUS regularly convex, pale buff, darker in the center, $1\frac{1}{2}$ to 2 inches over.

STEM hollow, brownish, cylindrical, splitting, $1\frac{1}{2}$ inch high, thick as a crow quill; the hollow very fine.

On a flower bed in the garden, Edgbaston.

23d Aug. 1792.

Page 402. Line 3, for *betulinus* (read) *betulinus*.

BOLETUS *fulphureus*. (See p. 424.)

VAR. 2. Pileus white.

TUBES yellow, not 1-20th of an inch in length. Pores yellow, irregular.

PILEUS white, covered with a very fine kind of woolly knap; marked with 3 or 4 concentric depressed lines or furrows; 4 or 5 inches over; thin and without tubes at the edge.

On an oak post, at Soho, about a foot from the ground. Aug.

Page 435. Before PEZIZA (add) 1331.

I N D E X

TO THE

THIRD VOLUME.

Acrostichum	48	Marchantia	153
Adiantum	64	Merulius.....	230
Agaricus.....	284	Mnium	84
Anthoceros	163	Mucor	481
Asplenium	51	Nidularia	445
Auricularia.....	432	Ophioglossum.....	45
Blafia	160	Osmundia	46
Boletus	406	Peziza	435
Bryum	91	Phallus	447
Buxbaumia	77	Phascum.....	72
Byffus.....	274	Pilularia	66
Clavaria	449	Polypodium	55
Conferva.....	261	Polytrichum	81
Equisetum	40	Pteris	49
Fistulina.....	405	Reticularia	469
Fontinalis	75	Riccia	161
Fucus	234	Sphagnum	71
Helvella.....	429	Sphæria	471
Hydnum.....	426	Splachnum.....	73
Hypnum	116	Targionia	157
Isoetes	67	Tremella	223
Jungermannia	141	Trichia	477
Lichen	164	Trichomanes	64
Lycoperdon	460	Tuber.....	453
Lycopodium	68	Ulva	228

M. D. C. X.

ALPHABET



1	A	2	B	3	C	4	D	5	E	6	F	7	G	8	H	9	I	10	K	11	L	12	M	13	N	14	O	15	P	16	Q	17	R	18	S	19	T	20	U	21	V	22	W	23	X	24	Y	25	Z		
26	AA	27	BB	28	CC	29	DD	30	EE	31	FF	32	GG	33	HH	34	II	35	JJ	36	KK	37	LL	38	MM	39	NN	40	OO	41	PP	42	QQ	43	RR	44	SS	45	TT	46	UU	47	VV	48	WW	49	XX	50	YY	51	ZZ
52	AAA	53	BBB	54	CCC	55	DDD	56	EEE	57	FFF	58	GGG	59	HHH	60	III	61	JJJ	62	KKK	63	LLL	64	MMM	65	NNN	66	OOO	67	PPP	68	QQQ	69	RRR	70	SSS	71	TTT	72	UUU	73	VVV	74	WWW	75	XXX	76	YYY	77	ZZZ
78	AAAA	79	BBBB	80	CCCC	81	DDDD	82	EEEE	83	FFFF	84	GGGG	85	HHHH	86	IIII	87	JJJJ	88	KKKK	89	LLLL	90	MMMM	91	NNNN	92	OOOO	93	PPPP	94	QQQQ	95	RRRR	96	SSSS	97	TTTT	98	UUUU	99	VVVV	100	WWWW	101	XXXX	102	YYYY	103	ZZZZ
104	AAAAA	105	BBBBB	106	CCCCC	107	DDDDD	108	EEEEE	109	FFFFF	110	GGGGG	111	HHHHH	112	IIIII	113	JJJJJ	114	KKKKK	115	LLLLL	116	MMMMM	117	NNNNN	118	OOOOO	119	PPPPP	120	QQQQQ	121	RRRRR	122	SSSSS	123	TTTTT	124	UUUUU	125	VVVVV	126	WWWWW	127	XXXXX	128	YYYYY	129	ZZZZZ
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260	AAAAAA	261	BBBBBB	262	CCCCCC	263	DDDDDD	264	EEEEEE	265	FFFFFF	266	GGGGGG	267	HHHHHH	268	IIIIII	269	JJJJJJ	270	KKKKKK	271	LLLLLL	272	MMMMMM	273	NNNNNN	274	OOOOOO	275	PPPPPP	276	QQQQQQ	277	RRRRRR	278	SSSSSS	279	TTTTTT	280	UUUUUU	281	VVVVVV	282	WWWWWW	283	XXXXXX	284	YYYYYY	285	ZZZZZZ
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676	AAAAAA	677	BBBBBB	678	CCCCCC	679	DDDDDD	680	EEEEEE	681	FFFFFF	682	GGGGGG	683	HHHHHH	684	IIIIII	685	JJJJJJ	686	KKKKKK	687	LLLLLL	688	MMMMMM	689	NNNNNN	690	OOOOOO	691	PPPPPP	692	QQQQQQ	693	RRRRRR	694	SSSSSS	695	TTTTTT	696	UUUUUU	697	VVVVVV	698	WWWWWW	699	XXXXXX	700	YYYYYY	701	ZZZZZZ
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780	AAAAAA	781	BBBBBB	782	CCCCCC	783	DDDDDD	784	EEEEEE	785	FFFFFF	786	GGGGGG	787	HHHHHH	788	IIIIII	789	JJJJJJ	790	KKKKKK	791	LLLLLL	792	MMMMMM	793	NNNNNN	794	OOOOOO	795	PPPPPP	796	QQQQQQ	797																	

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